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UTAH SURVEY ON EDUCATIONAL TELEVISION.

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A BRIEF HISTORY OF EDUCATIONAL TELEVISION IN UTAH WAS GIVEN AS WELL AS RECOMMENDATIONS FOR STATEWIDE ORGANIZATION FOR EDUCATIONAL TELEVISION IN UTAH. A LISTING OF THE OBJECTIVES OF EDUCATIONAL TELEVISION IN UTAH, AN ENGINEERING REPORT, AND GUIDELINES FOR FINANCING EDUCATIONAL TELEVISION IN UTAH WERE INCLUDED. (LP)

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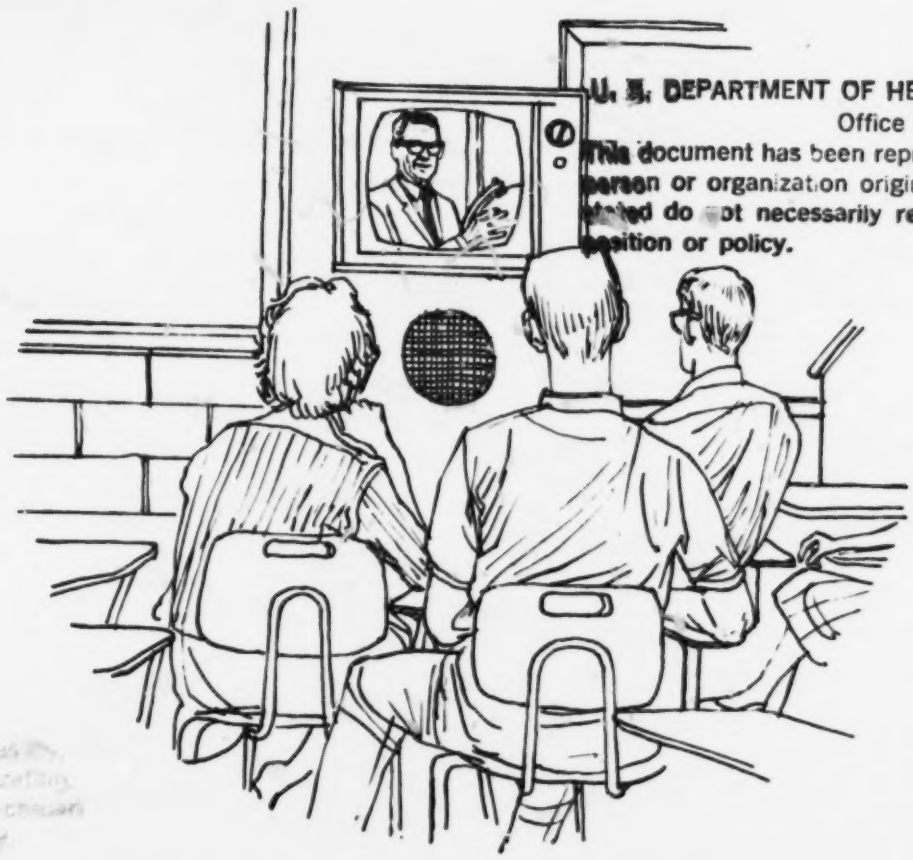

UTAH SURVEY ON EDUCATIONAL TELEVISION

DECEMBER, 1964

Published by the Utah Joint Committee on Educational Television on grants from the Ford Foundation and the Utah State Department of Public Instruction

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UTAH SURVEY ON EDUCATIONAL TELEVISION

Conducted under the
auspices of the Utah Joint Committee on Educational Television
on grants from the
Utah State Department of Public Instruction
and the Ford Foundation

KEITH M. ENGAR
Survey Director

DECEMBER, 1964

This survey is published for information of state government, school, and community leaders. Recommendations have been developed after long and careful study.

We are grateful to the Ford Foundation, particularly Mr. James Armsey. to the State Department of Public Instruction, and to all Utah educational institutions whose contributions financed this study.

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FOREWORD

This survey was conducted largely by volunteer personnel made available to the Utah Joint Committee on Educational Television by the educational institutions of the state.

The basic assumptions for the survey as agreed upon by the UJCET were these:

1. KUED, Channel 7, will be the key station in statewide use of ETV, and the University of Utah will continue its policy of offering facilities to all educational institutions in the state.
2. In every part of the state wherever possible, there should be at least two educational television programs available.
3. Regional and statewide cooperation is to be encouraged.

The objectives of the survey were these:

1. Development of a statement of the educational objectives of television for Utah.
2. Development of a concrete organizational plan to insure orderly and effective development of television without imposing a centralized control.
3. Development of a coverage plan which would make best use of the available channels.
4. Development of proposed construction and operating budgets to implement the coverage plan.

Funds to carry out the survey were budgeted initially as follows:

Personnel provided by institutions	$7,725
Grant from State Department of Public Instruction (used for engineering study and travel)	5,000
Grant from Ford Foundation used for Brighton Conference, conferences throughout the state, and travel	8,800
TOTAL	$21,525

It should be noted that the institutional contributions in time greatly exceed the budgeted amount.

Inasmuch as the survey took much longer than originally proposed, objective four has been altered. Under the aegis of the UJCET, KUED, KUSU-TV, and KOET have received funds under PL 87-447, the Educational Television Facilities Act of the United States, to implement construction. The KUED translator network and the KUSU-TV facility were direct outgrowths of UJCET action based on this survey. A translator network study was previously published and is not reproduced here.

The procedures which were followed are these:

1. A conference was held in Brighton (see appendix) on November 9 and 10, 1962, which was attended by educators, legislators, state government officials, municipal officials, and lay leaders. Out of this conference, general guidelines were developed for the survey.

2. Committees were organized as indicated to conduct specific aspects of the survey. Each committee prepared a report which was edited and adapted by the general survey director. Each report was acted upon by the UJCET.

Special mention should be made of the engineering and community needs survey.

Engineering Survey

The UJCET decided in 1962 that for the state of Utah a translator system was the only feasible means of achieving statewide coverage outside the areas which could support a station, i.e., Logan, Ogden, Salt Lake City, Provo. Therefore, the engineering aspect of the survey was divided into two phases: Phase I was planning for a translator network for KUED as the key station and for activation of KUSU-TV, channel 12, in Logan at Utah State University. A Salt Lake City firm, Electronic Sales Corporation, engineered the Phase One translator network. Since Phase II is for the future and since the finance committee has made priority recommendations, the entire engineering study for Phase II is published in the appendix. The description of the engineering study is summarized by the survey director in chapter five in view of the finance committee priority recommendations.

Community Needs Survey

The community needs survey was conducted by the Bureau of Community Development at the University of Utah in cooperation with many state agencies including the Utah State University Extension Service. The Bureau of Community Development expended many man-hours of staff time in designing a questionnaire and supervising the survey. For this we are deeply grateful. The summary of the statewide data is printed in the appendix.

Finally, deep gratitude is due the professional educational television personnel in the state who did the bulk of the work of the survey. Listed as the "Survey Advisory Committee," this group worked as the honing edge throughout the various stages of the survey to chop off superfluous material and to give direction. Obviously, not all points of view could prevail and there was give and take, but the final report represents the most reasonable consensus which could be expected from among groups with divergent interests.

The Utah Joint Committee members have been generous with their time and have supported the survey throughout. They have operated in the highest tradition of public service and future generations of the state's school children will owe them honor.

The UJCET formally approved the final survey report on Wednesday, November 18, 1964.

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Chapter I

SUMMARY AND CONCLUSIONS OF SURVEY

Realizing that there is some risk in presenting a summary and conclusions as the first chapter instead of following the supporting data which lead to the summary and conclusions, nevertheless, the survey director feels that the reader will appreciate knowing what we recommend before he reads the details of why we make such recommendations. Following this chapter there is a brief history of educational television in Utah, a listing of the objectives of educational television in Utah, recommendations for statewide organization for educational television in Utah, an engineering report, guidelines for financing educational television in Utah, and an appendix which contains information which may be useful and which is outlined in detail in the index.

As delineated by the Federal Communications Commission in setting up an educational broadcasting service, educational television stations have two major functions: The first is to provide a service of instructional programming which ranges from bearing the major burden of presentation of subject matter to enrichment. Such instructional programming may be presented during school hours to all levels of education. The second is to provide a noncommercial television broadcasting service for the United States. This implies bringing the very best in cultural, informational, and educational programming into the home for out-of-school children and adult viewing. Specific objectives for educational television in Utah are as follows:

1. There shall be an educational television signal available to every school in the state.
2. The very best instructors and instruction available shall be presented directly to the classroom by means of educational television.
3. Optimum use of the tax dollar should be achieved by sharing resources among educational institutions throughout the state on educational television.
4. Particular attention shall be given to the needs of small schools whose curricula may be broadened and whose instructional level may be assisted by means of educational television.
5. Confidence of the classroom teacher will constantly be improved through in-service training programs presented on educational television.
6. Vocational education shall be presented and encouraged on educational television.

In addition to the above objectives which are directed primarily to instructional uses of television in the schools and colleges, the following objectives are cited for educational television to the public at large:

1. To bring the finest talent on high-level cultural programs into the home.
2. To bring information and public discussion of the great issues facing our state to the widest number of people.
3. To present the problems of the smaller communities to the general public and to serve as a vehicle for smaller communities to present information about themselves to their own area and region.

In order to achieve these objectives, we recommend an organizational pattern for statewide television, an engineering pattern, and general guidelines for financing.

Organization

We propose that the Utah Joint Committee on Educational Television become the state's official educational television agency replacing the Utah Educational Television Foundation. The Joint Committee consists of four members of the State Board of Education and four members from the Coordinating Council for Higher Education for Utah, with a non-voting advisory committee of nine additional members drawn from representative institutions throughout the state. It is the opinion of the survey team that the present law authorizing the Joint Committee on Educational Television is adequate for the committee to continue its functions. In order to carry out the function of coordinating educational television in the state, it is recom-

mended that the Joint Committee set up the following standing committees:

1. The Utah In-school Television Advisory Committee, which would coordinate elementary and secondary in-school programs.
2. The Utah Interinstitutional Television Advisory Committee, which would study exchange of programming among the institutions of higher learning in the state.
3. The Utah Advisory Committee on Community Programming, which would encourage the use of educational television by smaller communities to meet the objectives indicated above.
4. A network committee which would coordinate exchange of programming among the educational television stations on the air in the state in order to get optimum use of the tax dollar by sharing programming resources.
5. A technical committee consisting of the chief engineers of the educational television stations. The technical committee would provide the Joint Committee on Educational Television with whatever technical information the committee requested.
6. An Arbitration Committee, which would adjudicate any disputes over fair use of statewide educational television facilities.

Engineering Report

The engineering committee was given two major assignments. One was to devise a plan which would take an educational television signal into every school in the state and as many homes as possible. The second was to devise a means of getting a second educational television signal distributed throughout the state wherever possible. To achieve the first objective, which is called Phase I of the engineering report, it was recommended that a translator network be created to repeat the programs of Channel 7, KUED, and that Channel 12, KUSU-TV, be activated inasmuch as Utah State University already had a fine production center. Phase I is now under construction thanks to a grant from the Department of Health, Eeducation, and Welfare. The plan calls for a sixty-eight translator system, and it is anticipated that counties will install their share of the translators within two years. The translator network is financed by counties, state, and federal funds in one of the unique television ventures in the United States. Phase II of the engineering study calls for either microwave connections among the educational television stations and additional transmitters on the air or installation of small videotape machines in the schools to get a second television signal into the schools.

Finance Committee Report

The Finance Committee has recommended that Phase II of the engineering problem be achieved through purchase of videotape recorders which are expected to sell for as little as $400 each. The Finance Committee recommends that microwave connections for various ETV stations be deferred at the present so that all available state funds will be concentrated on programming. The Finance Committee recommends that the Joint Committee work with the Coordinating Council for Higher Education and the State Department of Public Instruction in evaluating ETV station budgets which use state support (KUED and KUSU-TV) so that the requests shall be viewed as a totality. The Finance Committee recommends that all possible funds be given for programming both for in-school and community programming but that the in-school programming at this stage have first priority. The Finance Committee recommends that the Utah Joint Committee be given a budget of $10,000 for the biennium to cover the expenses of coordinating statewide use of educational television. The Finance Committee recommends school television programs for statewide use be financed through the Uniform School Fund administered by the State Department of Public Instruction.

Value of ETV

We can cite no better summary than the recently released results of the five-year Hagerstown, Maryland, instructional television project. Among the conclusions reached after evaluating the TV project were these:

Pupil achievement can improve significantly when TV is used consistently as a teaching aid.

TV accelerates the teacher's professional growth.

TV makes it possible to improve the curriculum and enrich the educational program more easily and economically.

TV does not replace the teacher or substitute techniques and procedures which would eliminate regular classroom learning activities and personal teacher-pupil relationships.

Operational costs can be met without increasing the normal school budget as savings result from redeployment of teaching equipment, altered scheduling of personnel and changed organization within schools.

Greater equality of educational opportunity is brought to all pupils as children in the small rural school have the same TV teachers and variety in courses as do children in the larger schools.

TV changes the role of the classroom teacher and makes him, along with the TV teacher, part of a teaching team.

Chapter II

A BRIEF HISTORY OF UTAH ETV

When the Federal Communications Commission issued its Sixth Joint Order and Report on April 14, 1952, one *VHF channel, Channel 7 in Salt Lake City, was reserved for education in the entire state of Utah. The following UHF frequencies were reserved: Logan *46, Ogden *18, Provo *28. Since Channel 7 had to serve all of education, the major educational interests in the state whose cooperative action had been responsible for influencing the FCC to reserve a VHF channel for education in Utah decided that it would be better to operate the station as a non-profit community corporation than as an institutionally licensed station. The Fund for Adult Education offered Utah $100,000 if the state could raise $200,000 to activate the station. Thereupon, an *ad hoc* committee under leadership of the late Superintendent of Public Instruction E. Allen Bateman drafted a bill to create a Utah Educational Television Commission and authorize appropriation of $250,000 for construction and part of one year's operation. The Legislature passed the bill but it was vetoed by Governor Lee in March of 1953. Following this setback, all of the educational groups met on June 22, 1953, in the offices of the Salt Lake City Board of Education and voted to incorporate an organization called the Utah Educational Television Foundation with the goal of raising funds to operate the station by the Foundation. After many attempts, the Foundation was unable to raise the money to construct the station. (As has been found in population centers similar in size to Utah's, a far larger population base than ours is needed to operate an educational television station as a community corporation. The smallest area attempting a corporation of this type is located in northern California and has excruciatingly difficult times meeting budget and payroll.) The Fund for Adult Education, headed by Mr. C. Scott Fletcher and with Mr. William Griffiths and Miss Anne Spinney as educational television specialists, informed the state of Utah that several other areas were applying for funds and, since the FAE had a relatively limited budget for new station activation, unless the state of Utah had concrete plans for activating Channel 7, the Ford Foundation would withdraw its offer of $100,000. At this point President A. Ray Olpin of the University of Utah informed the Utah Educational TV Foundation that the University would be willing to construct and operate the station on behalf of the state's educational institutions and that the University would make time available on a fair and equitable basis to all non-profit educational groups in the state. Inasmuch as the FAE grant would be lost if action were not taken, the Utah Educational Television Foundation members voted to give their support to the University in activating the station with the understanding that Foundation members would have access to the station's facilities. On June 8, 1956, the Utah Educational Television Foundation formally approved and endorsed the University's plan for operating Channel 7 and the University of Utah Board of Regents in turn set up a policy that the Foundation could allocate time except that under Federal Communications Commission rules and regulations the Board of Regents would have to be the final authority.

The University was granted a construction permit on December 12, 1956, and Channel 7 went on the air over one year later, January 20, 1958, as KUED, the nation's 29th educational television station. The station's schedule has grown constantly until last year over 2100 hours of programming were presented. Approximately 80,000 school children used the 30 hours a week of in-school programming put on by the State Board of Education with cooperation of the Salt Lake City, Granite, Weber, Davis, and Ogden school districts. Over twenty-two agencies presented programs and the Utah Educational Television Foundation has never had to adjudicate a single dispute.

KUED recently received a grant of $239,322 from the Federal ETV Facilities Program to construct an eighteen station network of key translators which would provide a backbone system to distribute educational television throughout the state. In a unique cooperative effort in which county, state, and federal agencies are participating, ultimately there will

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* VHF means Very High Frequency and refers to Channels 2–13.

UHF means Ultra High Frequency and refers to Channels 14–83. Most homes cannot receive UHF at present.

be a 68 translator system which will provide coverage to 100% of the schools in the state and 99% of the population. KUED will continue to serve as the state's key educational television station providing time for all educational groups. At the present time, the station operates five days a week but is proposing to operate seven days a week if given funds.

However, KUED is not the state's only educational television station. The Weber County School District faced with enrollment problems in its high schools put Channel 18 on the air as KWCS-TV on October 10, 1960. The primary purpose of the station is to provide instructional programming for Weber County School District schools. To date the station has attempted very little in the way of home viewing.

The third educational television station to go on the air, KOET inaugurated by the Ogden Board of Education on November 19, 1962, came into being because a commercial station on Channel 9 in Ogden went defunct and the facilities were sold to the Ogden board. At the present time Channel 9 presents instructional programming for Ogden City Schools, Box Elder and Davis county schools and plans to expand its programming into evening hours on a gradual basis.

The fourth channel to go on the air, KUSU-TV Channel 12 in Logan (March 16, 1964), was transferred to Utah State University from commercial interests when it became obvious that a community the size of Logan could not support a commercial station. Utah State University was given a grant of $99,865.00 from the Department of Health, Education, and Welfare under the Educational Television Facilities Act — one of the first grants made in the act — to put the station on the air.

Soon to come on the air will be KBYU-TV which will operate on Channel 11, another defunct commercial station which attempted to serve the Utah County area. KBYU-TV will move its transmitter to the Oquirrh Mountains in order to serve greater population.

In addition to the above stations, there are two unique UHF stations operated by the University of Utah. These are K71AU and K74AY with 10 watts of power operating on channels 71 and 74. The University is making Channel 74 available to metropolitan Salt Lake area school districts as a second television service. Therefore, 80% of the state's population now has available at the present time two or more educational television signals. Unquestionably, Utah has more educational television stations per capita than any other spot on the globe.

As has been mentioned, KUED went on the air with assistance from the Fund for Adult Education. Shortly after the University of Utah received its grant for KUED, the Ford Foundation stopped making station activation grants. Inasmuch as it is difficult to get educational television stations started in new areas without outside grants, Senator Warren Magnuson of Washington and Representative Roberts of Alabama introduced legislation in the U.S. Congress to create an educational television facilities act which would make available to the states construction grants on a matching basis. Initially it was conceived that such grants would be given to a state agency to disburse. The Utah Educational Television Foundation was the existing state coordinating body and was willing to receive the proposed Federal funds, but the Utah attorney general gave an opinion that the Foundation could not legally function as an official state agency for that purpose. Therefore, educational institutions in Utah pushed through legislation in 1962 forming the Utah Joint Committee on Educational Television consisting of four members from the state Board of Education and four members from the state Coordinating Council for Higher Education with advisory nonvoting members essentially from the Utah Educational Television Foundation. When the Educational Television Facilities Act was finally passed and signed into law on May 1, 1962, the act no longer called for a state agency to disburse the funds although it did indicate that a state agency should review and make recommendations to the Department of Health, Education, and Welfare. The Utah Joint Committee on Educational Television was given the charge by the legislature to study educational television in the state and make recommendations to the legislature on the purpose and organization of educational television in Utah.

This present survey report is a direct outgrowth of the above charge to the Utah Joint Committee on Educational Television and constitutes a report to the legislature. The recommendations and summary which introduced this report are the result of a survey on educational television which began in the summer of 1962.

Chapter III

OBJECTIVES FOR EDUCATIONAL TELEVISION IN UTAH

All educational television stations in the United States have two major objectives or purposes which were proposed in the early days of television and which were made specific by the Federal Communications Commission in its *Sixth Report and Order* released April 14, 1952. These two objectives are: (1) To provide a service of instructional programming which ranges from bearing the major burden of presentation of subject matter to enrichment in all the levels of education: elementary, secondary, college, and adult education. (2) To provide as enunciated by the Federal Communications Commission a noncommercial television broadcasting service for the public at large. Existing stations in Utah have fulfilled these objectives with varying degrees of emphasis.

Specific purposes to fit Utah's situation must be added to the above. The following objectives have grown out of discussion among educators, lay people, legislators, community leaders; indeed, from a broad cross section of the citizenry of Utah.

Objectives for Instructional Television

1. Educational television should be made available to every student in the state.
2. New educational facilities or old facilities which are to be remodeled should incorporate into their planning and construction the best means of utilizing educational television.
3. Future expansion of educational television should be based on real and vital needs in the state.
4. An organization should be set up which would coordinate all of the ETV facilities in the state for optimum use and assist in making possible the identification of needs, the sharing of resources, and cooperative planning, production, and financing of ETV courses and enrichment programs. Such an organization should recognize that good television courses, like good textbooks, may be available from sources outside a district, a region, or the state.
5. Educational television should be used in the following ways:
   a. To provide in-service education and training for teachers both directly and indirectly. Part of the in-service program would be an extension of staff supervisory services of the various districts or the State Department of Public Instruction through television. More and better teacher training on a continuing basis should be provided through educational television.
   b. Educational television under the supervision of curriculum supervisors should be used to strengthen the public school curriculum and learning opportunities in both academic and vocational training areas.
   c. Educational television should provide additional enrichment direct to the classroom and create an exciting and more adequate cultural and learning environment. The very best instructors in the world should be brought to the schools through educational television in Utah.
6. An adequate system of feedback and evaluation of all levels and in all subject areas should be established for educational television.
7. Any statewide coordinating body should insure that program information, schedules and guide materials used with educational television programs are adequate, appropriate, and available in advance of the beginning of the school year to permit administrators, supervisors, and teachers to incorporate television into their planning.
8. Local school districts — indeed, individual schools and teachers — should be intimately involved in the planning of instructional television programming.
9. In addition to broad needs for all schools which can be served by educational television, there are some specific needs of small schools throughout the state. These needs have been enumerated as follows:
   a. Educational television must provide means of every student in the state to receive the same high quality education as those in the largest and most affluent districts. Utah still has twenty-three high schools with less than 50

pupils per grade and eleven additional secondary schools with less than 100 per grade. Thirteen junior high schools have less than 100 pupils per grade. One hundred fifteen of Utah's elementary schools have less than a teacher per grade. Students in these schools, as has been said, deserve the best educational program, and educational television through the statewide distribution system can uniquely provide for the small schools.

b. In the small school the instructional program is neither sufficiently broad nor challenging according to statements of leading educators. The scope of the academic program is limited. Even where courses are offered they are often taught by teachers whose training in the subject matter is inadequate. Educational television can and must be used to broaden the curricula of small high schools and elementary schools. Thoroughly trained teachers and those teaching out of their fields could be assisted by well-trained studio teachers over television. Inadequate facilities, equipment, teaching materials, limited community resources could be supplemented by the television presention.

c. In-service training programs specifically designed for rural teachers should be scheduled on the statewide educational television system.

d. Educational television could serve as a primary source to enrich and supplement the cultural opportunities for students in the remote communities of the state.

The above objectives are primarily for elementary and secondary schools. The following objectives are submitted for institutions of higher learning:

1. Educational television could be used to bring to the state an exceptional teacher whose course would be distributed to all institutions via television if costs were shared among the institutions of higher learning.
2. Educational television could be used to help shortages in the smaller colleges by making the curriculum of the larger colleges available by videotape.
3. Institutions of higher learning in the state should be brought together to evaluate uses of educational television broadcasting stations among the various institutions, to help share outstanding faculty and to bring unusual talent to the state.
4. Educational television should be used to encourage exchange of ideas among faculty members of the institutions of higher learning.
5. One of the primary objectives of educational television should be to take vocational training to as many people as possible and to stimulate interest in vocational education.

Objectives for a Non-Commercial Broadcasting Service

The following objectives should be striven for:

1. To bring the finest cultural, informational and educational materials into the home for adults and children out of school.
2. Educational television stations may serve as a balance wheel bringing the very best talent and information about the world to the smallest hamlet in Utah, but on the other hand, bringing information about the smallest hamlet in Utah to the attention of the rest of the state. There are three kinds of programs which could be produced to achieve these objectives:
   a. Programs about the community beamed to the state.
   b. Programs about the state beamed to the communities.
   c. Discussions of local community problems presented only for consideration of the locality.
3. An educational television signal should be available in every home in the state if possible. It should be noted that with the translator network and if the translators are all activated, 99% of the homes will receive an educational television signal.

The survey team and the Utah Joint Committee on Educational Television have agreed on the above objectives. The remainder of this survey is concerned with the following:

1. A statewide organizational plan to achieve those objectives.
2. A statewide engineering plan to achieve those objectives.
3. Guidelines on financing educational television in Utah.

Chapter IV

ORGANIZATION FOR COORDINATING STATEWIDE USE OF EDUCATIONAL TELEVISION

The Utah Joint Committee on Educational Television was created by the 1961 Utah Legislature to develop educational television and to receive federal funds as may be made available to the state for general educational television purposes and to administer and allocate such funds consistent with the provisions of any law applicable thereto.

The Committee was also empowered by the Legislature to "make such recommendations to the Legislature on the purposes and organization of educational television in Utah as are considered desirable." The survey team and educators and laymen consulted have agreed on a common set of objectives which a coordinating body should have, and after much reflection, the survey team has concluded that the present Utah Joint Committee on Educational Television has the attributes desired of a statewide organization. The following attributes were agreed upon:

A. The agency should be nonauthoritarian in nature and have sharply limited powers in the direction of educational activities of either tax supported or private educational agencies.

B. The agency should seek (to a reasonable extent) voluntary service from persons employed by organizations active in educational television in carrying out the mission of the agency rather than to build a paid staff.

C. The agency should provide coordinating machinery for an orderly, sound development of a state-wide educational television service in Utah. The agency would provide the impetus for the various Utah institutions to come together voluntarily to coordinate their activities.

D. The agency should conduct continuing statistical and evaluative studies of educational television in the state. The agency should prepare such reports and publications as will encourage effective and efficient utilization of ETV in Utah.

E. The agency should serve as a mediating and arbitrating agency for resolving disputes or conflicts which may arise over use of statewide educational television facilities. Inasmuch as each licensee is charged by the Federal Communications Commission for being completely responsible for its facility, such arbitration could not be imposed by the coordinating agency but the service will be offered upon joint request of all interested parties. It should be noted that for tax-supported agencies, public opinion and possible legislative review are powerful inducements to cooperation.

F. The agency should provide representation for individuals and groups of citizens in shaping utilization of statewide educational television.

G. The agency should act as the official Utah body for coordinating educational television planning with neighboring states.

H. The agency should receive and allocate federal and other funds assigned to general educational television in Utah not committed to any particular agency in the state. This would not prevent individual stations from receiving grants from outside sources. The agency should extend its offices for consultation with the federal government or foundations for development of ETV in Utah.

I. The agency should create and maintain such committees as the agency deems necessary and proper for the discharge of its functions.

J. The agency should provide office, clerical, and other basic services required for support of the foregoing functions but limit such services to the bare minimum. Housing for the agency and personnel should be provided by the State Department of Public Instruction and Coordinating Council for Higher Education for Utah.

The Utah Joint Committee on Educational Television as presently constituted is possessed of sufficient power to accomplish all of the above aims without further legislation. While at one time the

survey director proposed that the voting membership of the Utah Joint Committee on Educational Television be changed and enlarged to permit greater involvement on the part of individual institutions and school districts, it was later concluded that the recommended working committees of the Utah Joint Committee on Educational Television would provide opportunity to involve the major educational institutions in the state in ETV development.

Recommended standing committees are:

A. The Utah In-School Television Advisory Committee

B. The Utah Interinstitutional Television Advisory Committee

C. The Utah Advisory Committee on Community Programming

D. The Network Committee

E. The Technical Committee

F. The Arbitration Committee

The functions, duties, and suggested personnel of each committee are now reveiwed.

State In-School Television Advisory Committee

A. Proposed basic committee structure

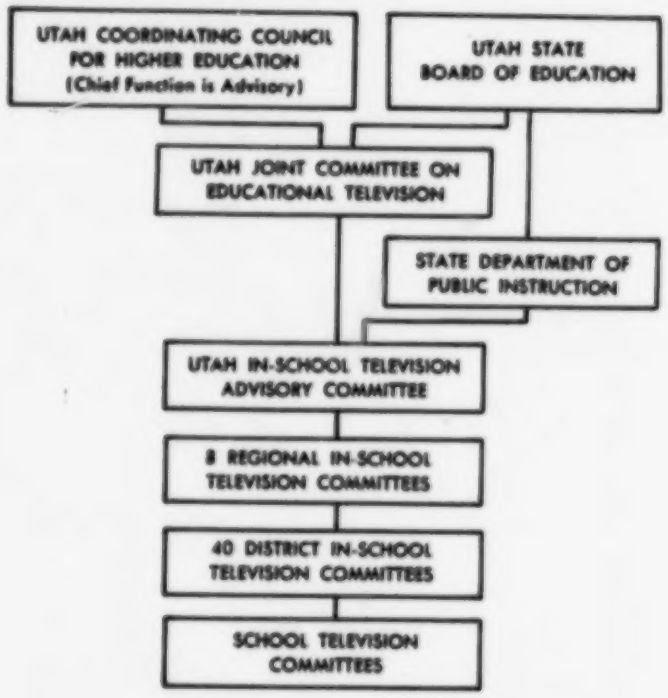
The State Board of Education comprises one half the membership of the Utah Joint Committee on Educational Television and therefore directly represents the public schools on the committee.

However, statewide in-school programming must of necessity involve each school district. Such involvement is proposed through the Utah In-School Television Advisory Committee which operates under the auspices of the State Department of Public Instruction. Said committee would coordinate statewide plans in program development, procurement, and distribution.

An in-school TV committee would be created in each of the eight regions indicated by the map. Each would function as a coordinating mechanism for regional ETV planning.

Within each school district, district and school ETV committees are recommended to provide guidance in ETV development.

B. Communications Chart of the In-School Television Committees


UTAH COORDINATING COUNCIL FOR HIGHER EDUCATION (Chief Function is Advisory)
UTAH STATE BOARD OF EDUCATION
UTAH JOINT COMMITTEE ON EDUCATIONAL TELEVISION
STATE DEPARTMENT OF PUBLIC INSTRUCTION
UTAH IN-SCHOOL TELEVISION ADVISORY COMMITTEE
8 REGIONAL IN-SCHOOL TELEVISION COMMITTEES
40 DISTRICT IN-SCHOOL TELEVISION COMMITTEES
SCHOOL TELEVISION COMMITTEES

C. Map of Regional Committees (p. 16)

D. Committee Personnel

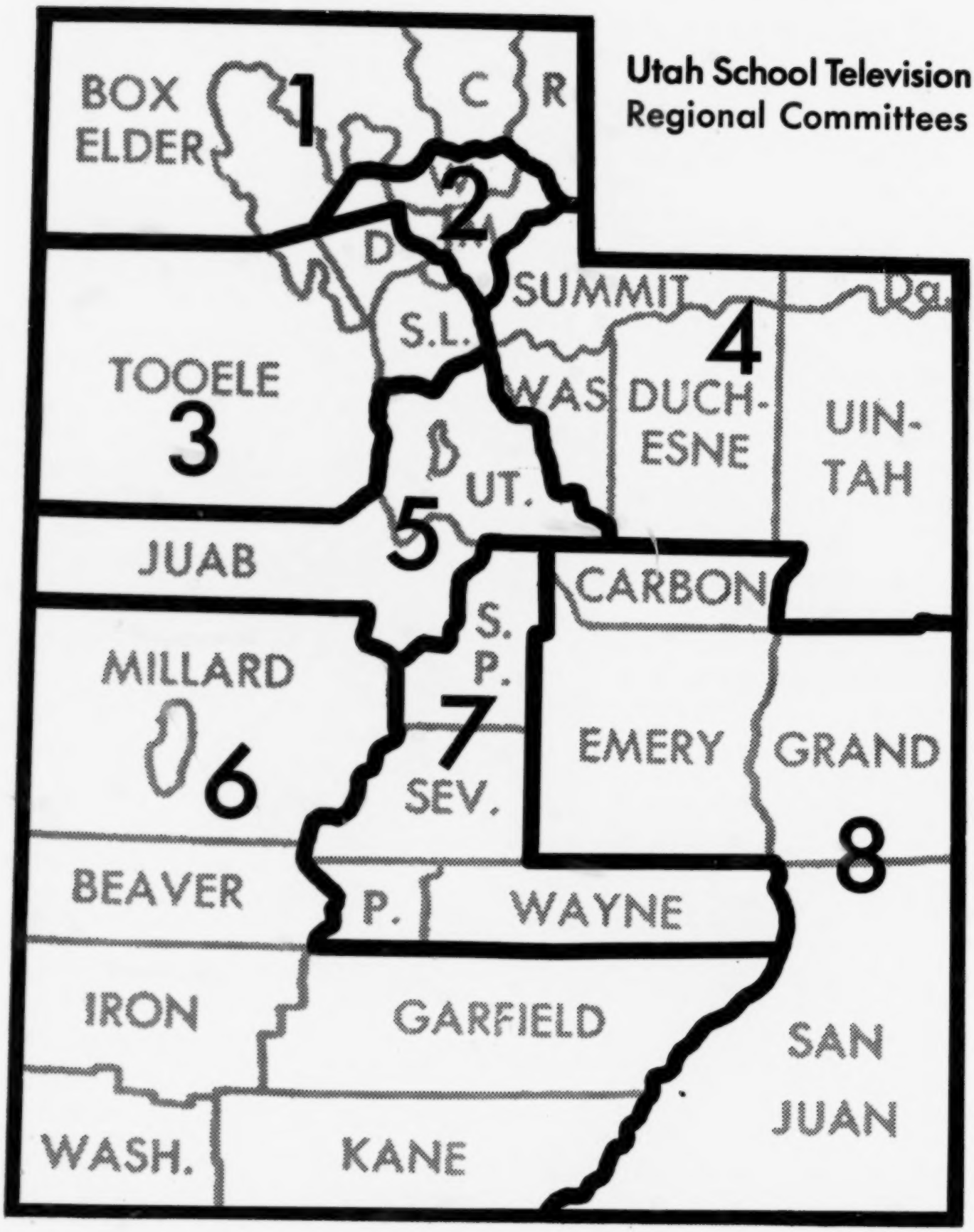
Membership in the State In-School Television Advisory Committee would be as follows:

1. Fifteen regional representatives appointed for an initial term of two years.
   a. One representative for every 16,000 student enrollment or major fraction thereof.
   b. A minimum of one representative per region.
   c. A maximum of one representative per district.
2. Five to eight members of the staff of the State Department of Public Instruction to be appointed as needed.
3. One representative from each university college of education.
4. Professional TV persons as required.

Membership in the Regional In-School Advisory Committees would be as follows:

1. Regional representatives to the State Advisory Committee, one of whom shall serve as chairman of the regional committee.

Utah School Television
Regional Committees



2. Not more than four representatives from each district. These shall be designated by each district superintendent as determined at the first regional meeting.
3. One representative from each university, college or junior college within the region if such is not already provided under No. 1 above.

It is suggested that each regional committee define or delimit the term of office of its chairman. Procedure for choosing regional chairman shall be determined by each region.

E. Enrollment Distribution to Define Regions and Their Representation on the State ETV Advisory Committee

Region	District	Enrollment 1963–64 Grades 1–12	Recommended Representation
I	Cache	5,492	1
	Box Elder	8,873	
	Logan	4,091	
	Rich	451	
		18,907	
II	Morgan	897	2
	North Summit	656	
	Ogden	17,381	
	Weber	15,368	
		34,302	
III	Davis	25,119	6
	Salt Lake City	38,089	
	Granite	48,962	
	Jordan	13,509	
	Murray	5,603	
	Tooele	6,386	
		137,668	
IV	South Summit	632	1
	Park City	408	
	Wasatch	1,645	
	Duchesne	2,216	
	Daggett	257	
	Uintah	4,051	
		9,209	
V	Alpine	14,308	2
	Provo	6,582	
	Nebo	8,688	
	Tintic	221	
	Juab	1,037	
		30,836	
VI	Millard	2,336	1
	Beaver	1,172	
	Iron	2,935	
	Washington	3,269	
	Garfield	1,105	
	Kane	386	
		11,203	
VII	North Sanpete	1,242	1
	South Sanpete	1,635	
	Sevier	2,956	
	Piute	443	
	Wayne	575	
		6,851	
VIII	Carbon	4,765	1
	Emery	1,712	
	Grand	2,119	
	San Juan	1,937	
		10,533	
Total Enrollment:		302,010	
Total Representation:		15	

F. Function of Each Committee

1. The State In-School Television Advisory Committee shall develop, procure, and distribute television programs intended for transmission over the KUED statewide translator system and/or a combination of stations.

   Said committee shall recommend to the State Department of Public Instruction television programs and corollary materials (study guides) to meet the needs of public schools. (The SDPI for its part may contract with stations to produce programs or it may purchase syndicated series from NET, NITL, MPATI, Heathe deRochemont, etc.) The committee's primary responsibility would be to provide every child in Utah the finest instructional materials available via television.

   The staff of the State Department of Public Instruction logically is the group to coordinate and implement the recommendations of the State In-School Television Advisory Committee.

2. Regional and local committees shall determine public school programming needs in their respective locales and communicate these needs to the State In-School TV Advisory Committee.

   Where possible, regional and local committees shall work with ETV stations to provide pro-

grams designed for local use. However, districts should be encouraged to consider television as a quality instrument and not proliferate programs in which sufficient personnel and time are not allotted to prepare first-rate programming.

Interinstitutional TV Committee for Higher Education

Said committee shall consist of directors of television or their equivalents at each institution of higher education in the state, and of members of the State Committee for Academic Needs (SCAN) which is a Utah Coordinating Council for Higher Education committee composed of the chief academic officers of institutions of higher education.

The UJCET recommends that the Interinstitutional TV Committee shall provide a continuing source of information to guide in development of interinstitutional TV in Utah. While the survey found that such use of TV by colleges in Utah is not contemplated in the immediate future, nevertheless there was interest in further study. Therefore, the committee should explore:

A. Possibilities of sharing costs of bringing to the state an exceptional teacher whose course would be distributed to all institutions by television.

B. Possibilities of sharing costs of bringing to the state exceptional talent whose performances would be distributed to all institutions by television.

C. Possibilities of institutions providing the time of a faculty member to teach a course to be used by other Utah institutions via television.

D. Organization of workshops for the development of a pilot study of an interinstitutional college course.

E. Establishing an information service to college and university administrators to keep them appraised of ETV developments in the state with special reference to the availability for exchange within the state of televised college courses.

Advisory Committee on Community Programming

To represent the public at large throughout the state, there should be a standing committee called the Advisory Committee on Community Programming consisting of the Director of the Bureau of Community Development at the University of Utah, the Director of the Utah State University Extension Service, a representative from the Utah Fine Arts Commission, and one representative from each of the eight regions delineated for the In-School Television Advisory Committee to be appointed in such manner as each region shall determine. The major purpose of this committee would be to encourage use of educational television by communities throughout the state to achieve the objectives cited in Chapter III. This committee would serve as a focus for studies of community use of educational television and would prepare reports for the Utah Joint Committee on Educational Television as requested.

It is assumed that each station would develop programming from the community in its own coverage area, but that for the statewide service, cooperative effort would provide better programming at less cost.

Network Committee

The committee would consist of each program manager of an educational television station in the state of Utah. Chairmanship of the committee should rotate each year.

The purpose of this committee would be to develop exchange of programming among the various educational television stations in the state.

Technical Committee

The purpose of the technical committee is to provide the Utah Joint Committee with a ready source of information on technical requirements for statewide use for educational television. It is proposed that membership of this committee consist of the chief engineer of each educational television station on the air. The chairmanship of the committee should rotate annually.

Arbitration Committee

The Utah Joint Committee on Educational Television should sit as a committee of the whole to handle any arbitration if disputes should arise over the use of state-wide facilities. The Utah Joint Committee should adopt an arbitration code mutually agreeable to all users of statewide educational television facilities.

Chapter V

ENGINEERING COMMITTEE REPORT

Under the able chairmanship of Mr. Boyd Humpherys, chief engineer of KUSU-TV in Logan, an engineering report has been developed. The engineering committee was charged with two major tasks:

A. To develop a statewide coverage system for educational television (Phase I).

B. To study means for adding a second television service and to study other possibilities for maximum utilization of ETV (Phase II).

This chapter summarizes the engineering report. The entire report is reproduced in the appendix.

Phase I

After considering many alternatives and taking into account the state's population distribution and financial resources, it was clear that statewide coverage could only be achieved and supported through a system of translators which the commercial stations had already demonstrated is a satisfactory means of television transmission. Therefore, the committee recommended such a network. As far as is known, the Utah translator network will be the first statewide translator network engineered as a system and will be the first educational TV translator network in the world.

Inasmuch as Utah State University in Logan had an excellent television production center and had obtained an FCC construction permit for Channel 12 from a commercial station which could not foresee adequate financial support for such a station commercially, it was decided to include Channel 12 in Phase I to cover the Cache Valley area and other parts of northern Utah and southern Idaho which could receive the signal.

Phase I was endorsed by the Utah Joint Committee on Educational Television in 1963, and the University of Utah for KUED and Utah State University for KUSU-TV applied to the Department of Health, Education, and Welfare for matching grants under the Educational Television Facilities Program. Both institutions were successful in obtaining grants and Phase I is well under way to successful completion.

Phase II

One of the major objectives of the survey was to study means of getting a second television signal into as many parts of the state as possible. The Wasatch Front now has more educational television signals per capita than any other part of the world. There are two signals available in Provo, there will be four signals available in Salt Lake City, there are three signals available in the Ogden area, and two signals available in the Cache County area when a translator is installed for Channel 7. The coverage map of each educational television station on the air or soon to go on the air in Utah illustrates how this coverage is concentrated.

Only one of the stations, KUED Channel 7, went on the air as a statewide educational television service. KUSU-TV in Logan is supported by state funds and Utah State University will reach the statewide system through KUED. KBYU is owned and operated by a private institution although there have been indications that the licensee will cooperate with public school systems. KOET and KWCS-TV in Ogden are owned and operated by individual school districts who operate the station for their own purposes, although there has been a great deal of cooperation in making programs available to the statewide system. The transmission, however, of KWCS-TV is limited to Weber County only. KOET, Channel 9, gets an excellent signal into Box Elder County and parts of Davis County. K71AU and K74AY cover the Salt Lake Valley but were primarily designed as a television distribution system for the University of Utah campus although K74AY is now being used cooperatively by the metropolitan Salt Lake area school districts as a second day-time in-school television service.

A logical future step would be to interconnect the existing stations by microwave relay. Major advantage of such a move would be to make the on-the-air schedule of one station available immediately to the other stations. Such interconnection usually stimulates programming. In the appendix, a complete review of microwave is published.

To get a second television signal to the remaining parts of the state is not as simple as once supposed.

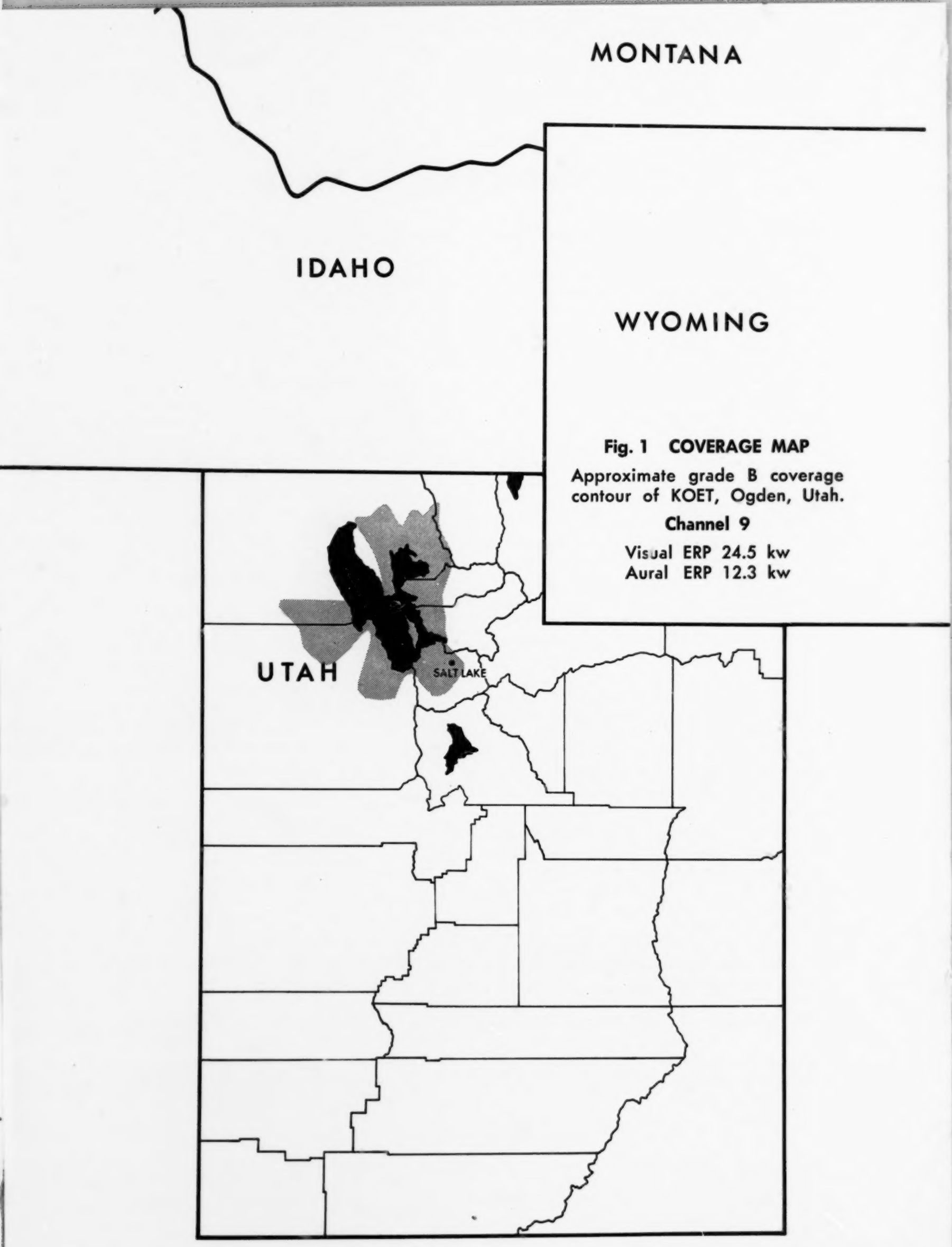


Fig. 1 COVERAGE MAP

Approximate grade B coverage contour of KOET, Ogden, Utah.

Channel 9

Visual ERP 24.5 kw
Aural ERP 12.3 kw

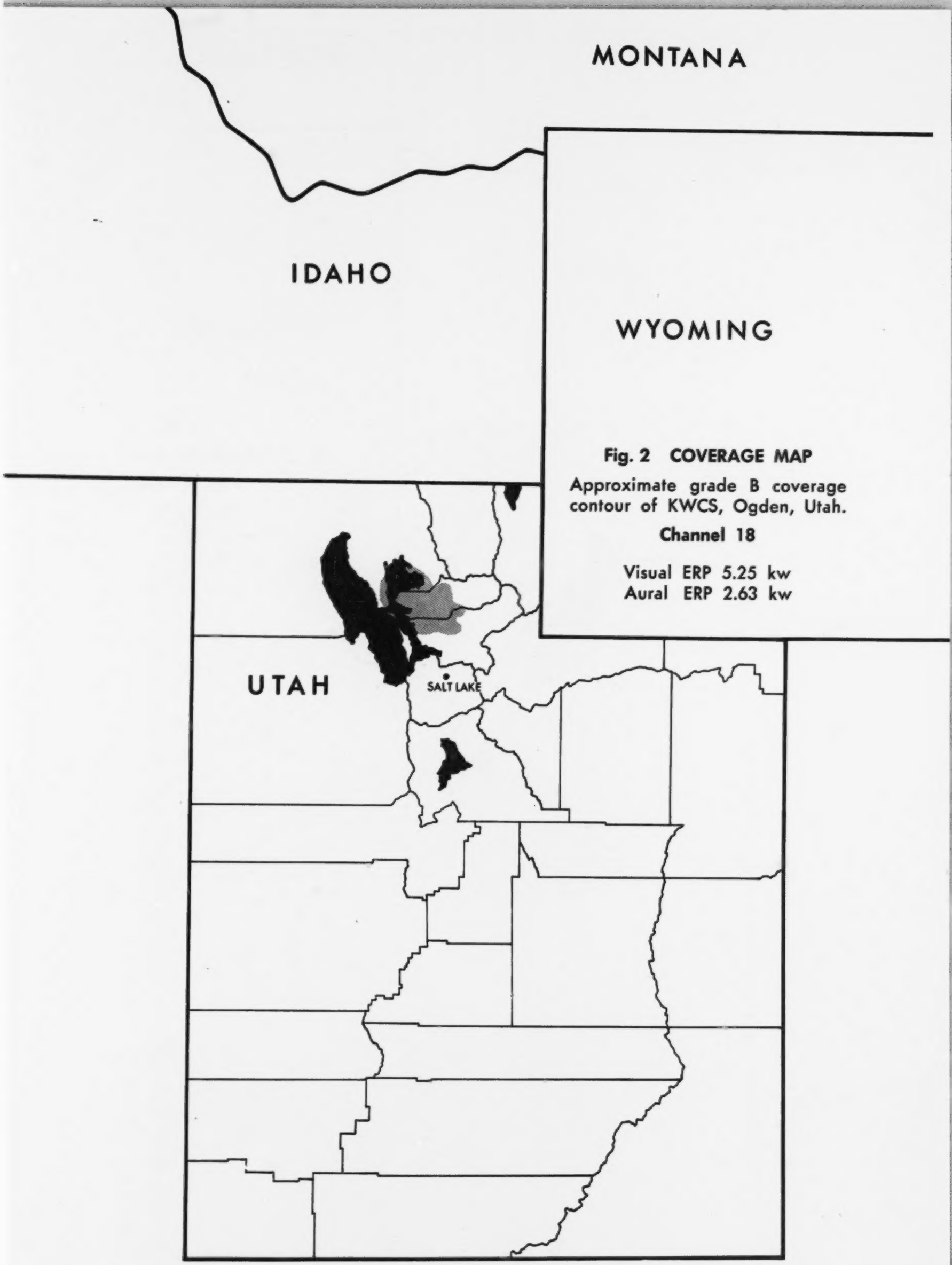


Fig. 2 COVERAGE MAP

Approximate grade B coverage contour of KWCS, Ogden, Utah.

Channel 18

Visual ERP 5.25 kw
Aural ERP 2.63 kw

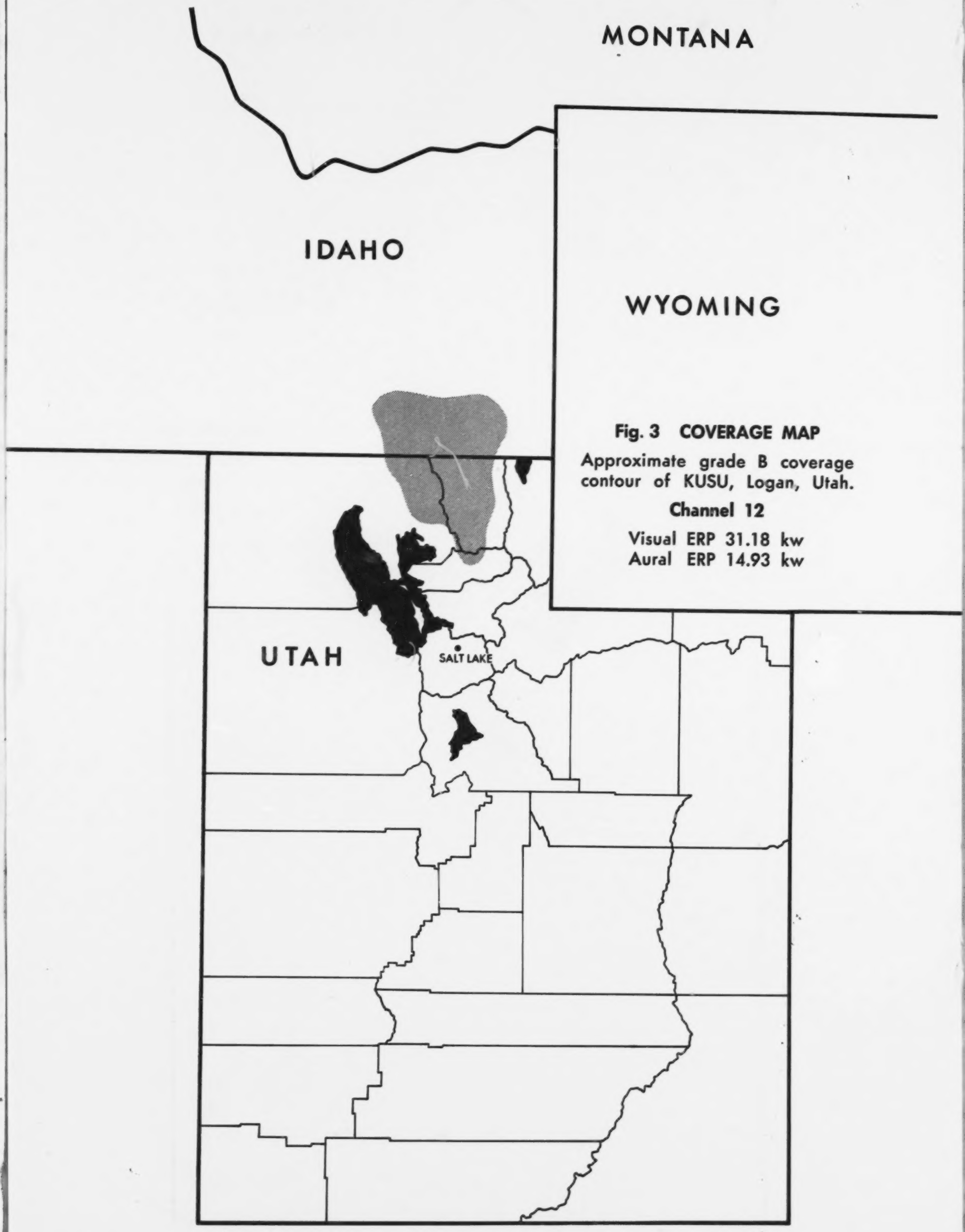


Fig. 3 COVERAGE MAP

Approximate grade B coverage contour of KUSU, Logan, Utah.

Channel 12

Visual ERP 31.18 kw
Aural ERP 14.93 kw

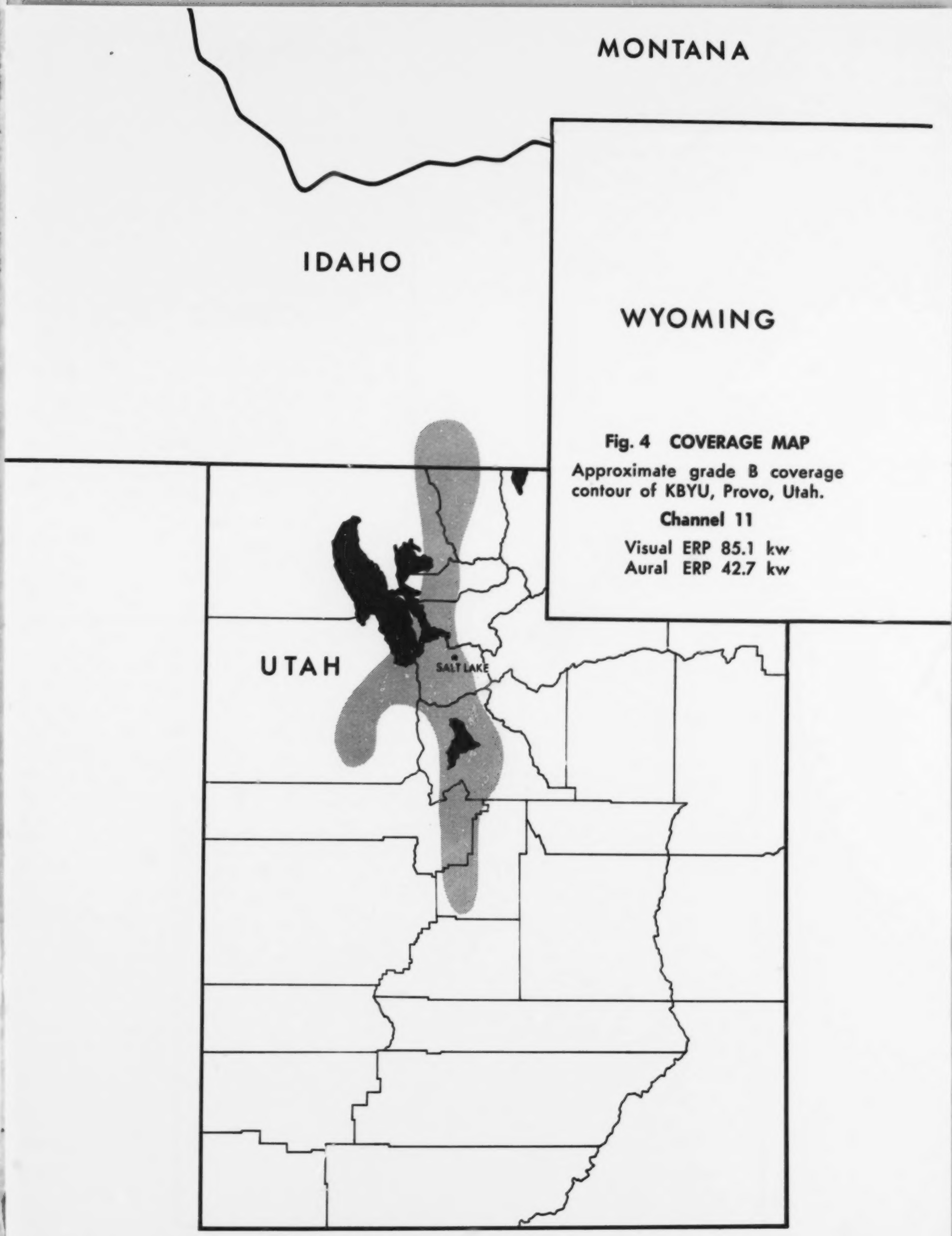


Fig. 4 COVERAGE MAP

Approximate grade B coverage contour of KBYU, Provo, Utah.

Channel 11

Visual ERP 85.1 kw
Aural ERP 42.7 kw

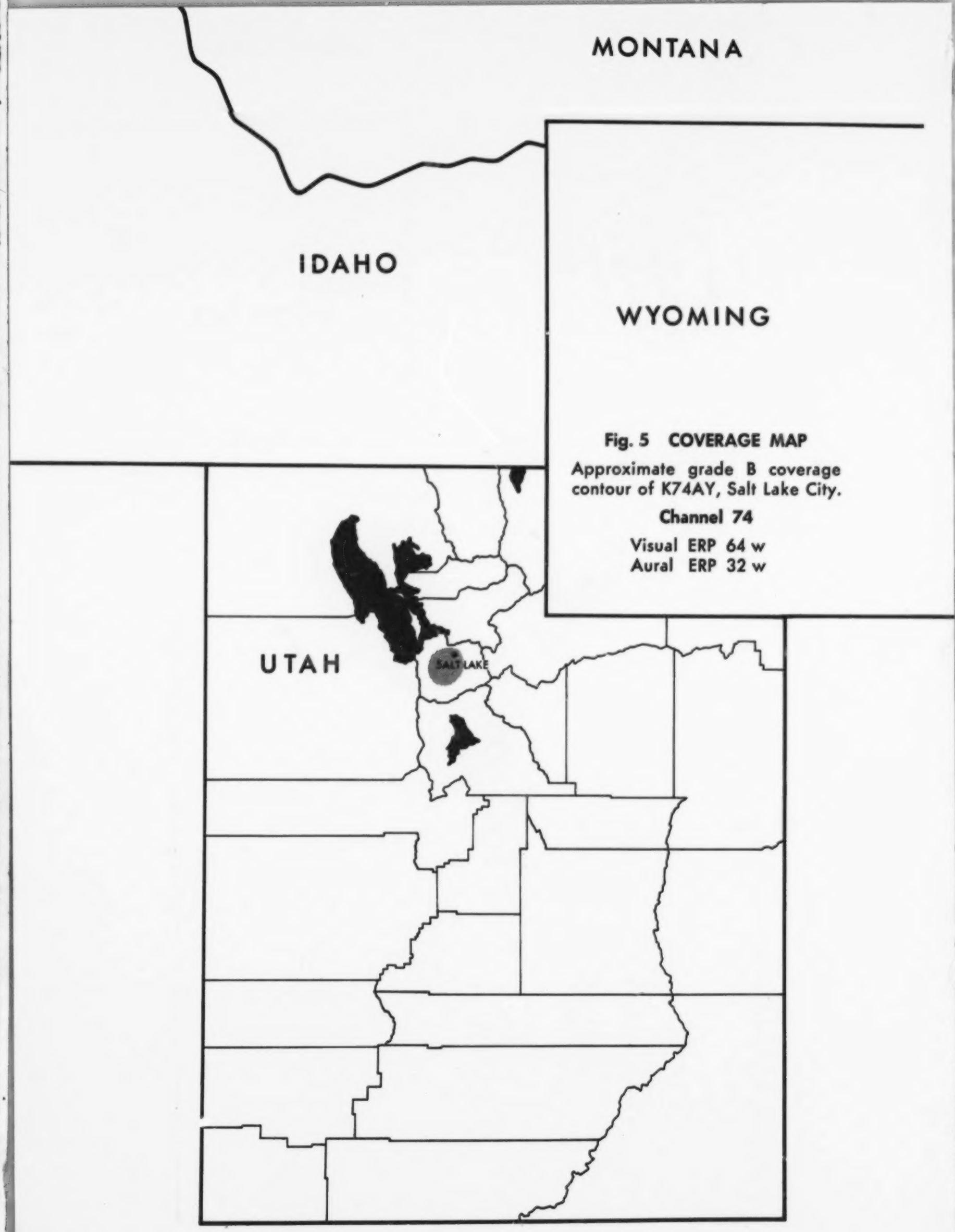


Fig. 5 COVERAGE MAP

Approximate grade B coverage contour of K74AY, Salt Lake City.

Channel 74

Visual ERP 64 w
Aural ERP 32 w

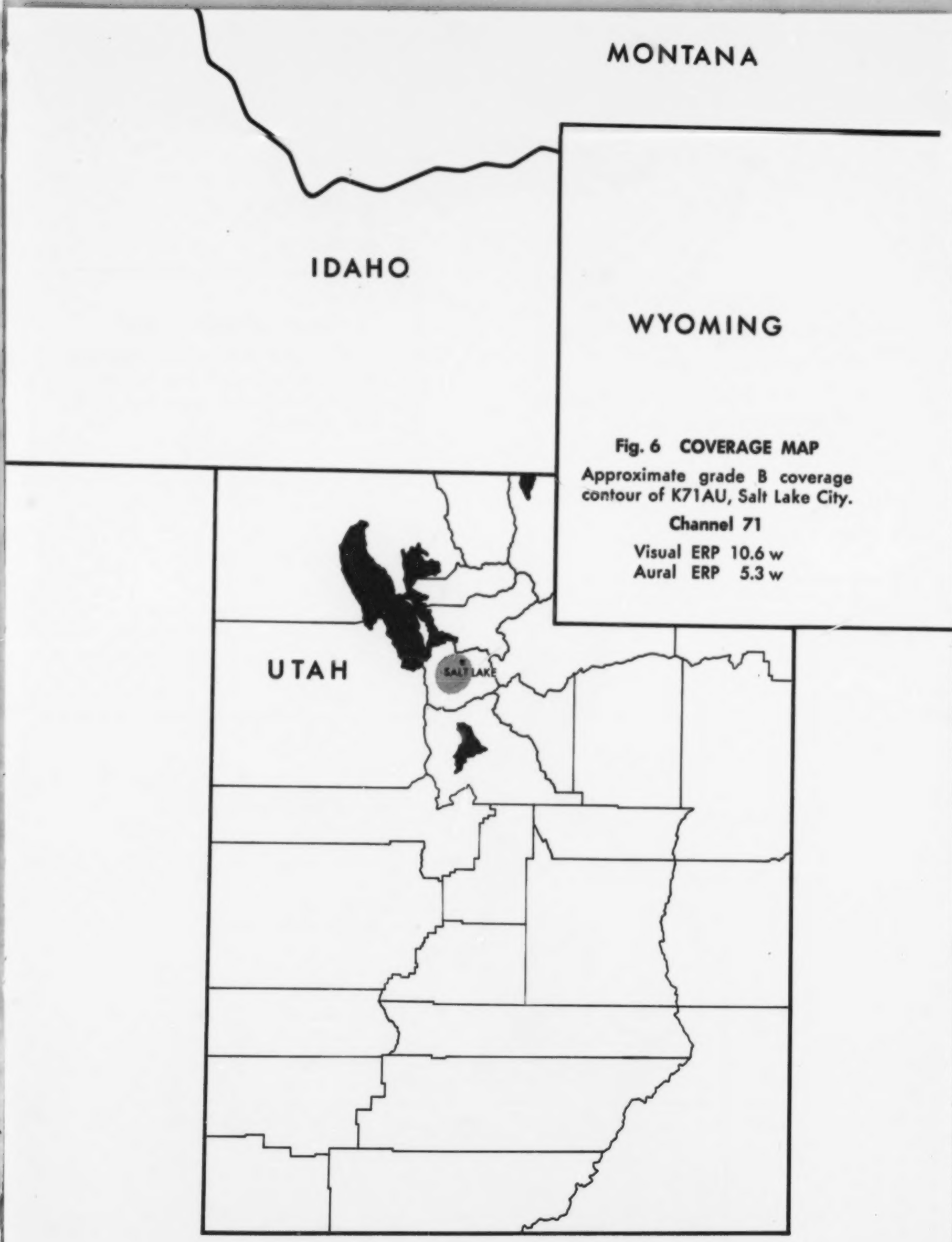


Fig. 6 COVERAGE MAP

Approximate grade B coverage contour of K71AU, Salt Lake City.

Channel 71

Visual ERP 10.6 w
Aural ERP 5.3 w

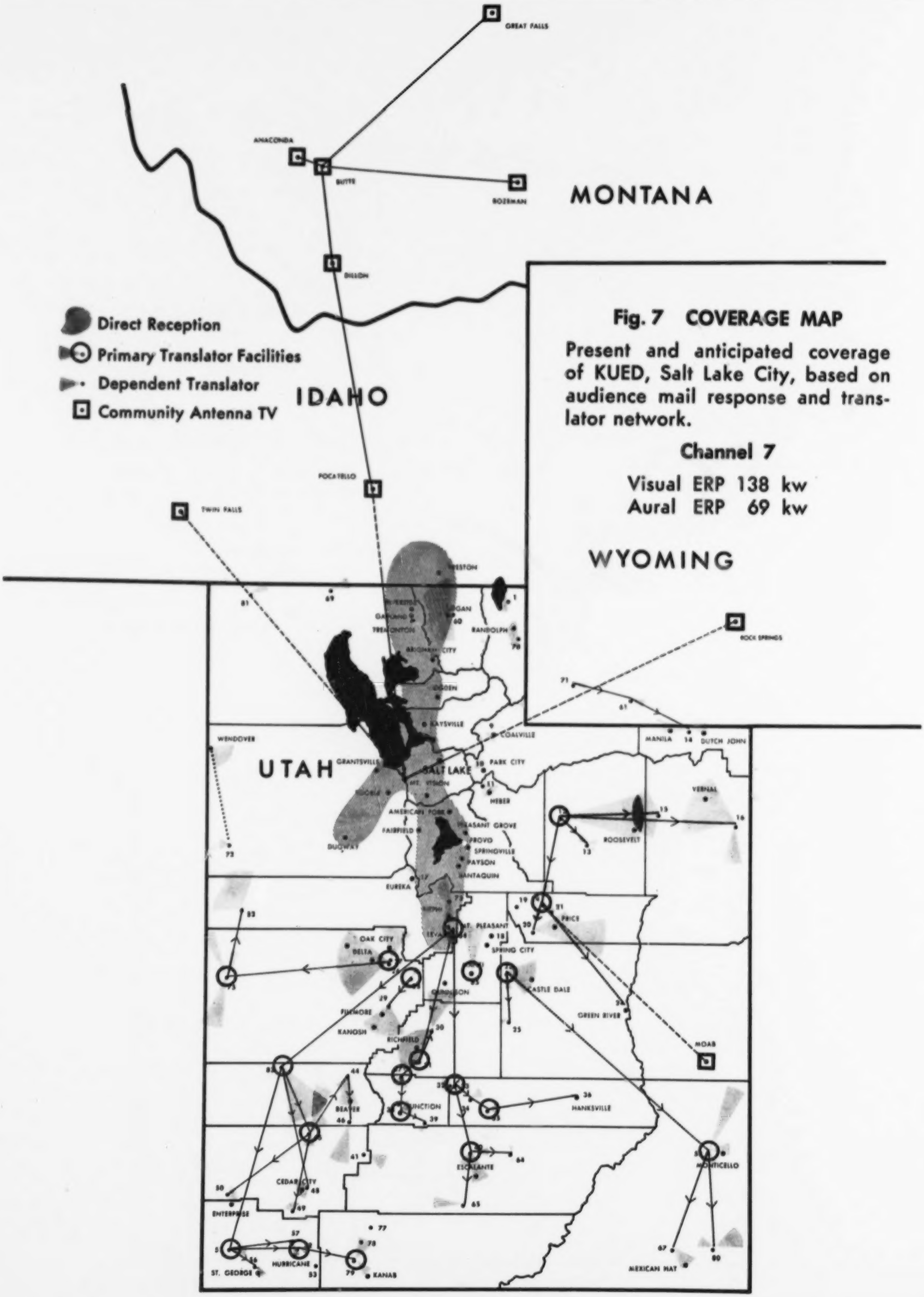


Fig. 7 COVERAGE MAP

Present and anticipated coverage of KUED, Salt Lake City, based on audience mail response and translator network.

Channel 7

Visual ERP 138 kw
Aural ERP 69 kw

Because of extensive usage of present VHF channels, additional translators would most certainly have to be UHF, or ultra-high frequency channels between 70 and 83. However, the commercial channels and Channel 7 now have utilized the bulk of the UHF channels in key places which will make it extremely difficult to install a second translator system, and the expense for state and counties is prohibitive. Therefore, two other possibilities seem to offer the most promising answers to a second television service at this time. These are the inexpensive videotape recorder and, where population centers warrant it, the new 2500 mc system called instructional television fixed stations recently authorized by the Federal Communications Commission.

Videotape Recording

Probably no development in television has caused such a revolution as a videotape recorder. The first models weighed 1,000 pounds and cost in excess of $60,000. With the American free enterprise system at work and foreign competition as the spur, models are now on the market which weigh less than 100 pounds and which cost $12,000. Recently two manufacturers have demonstrated home videotape recorders which will sell between $200 and $600 and which use an ordinary television set as the playback screen. With such low-cost videotape recorders on the immediate horizon and with acceptable quality videotape recording just as easy to accomplish as audio recordings are today, it appears that distribution of taped instructional programs to the schools by means of videotape recorders appears to be a distinct and promising possibility. Each school thus equipped would be able to feed the output of its tape recorder (operated by nontechnical personnel) into the television set in the room. The output of the tape recorder could also be fed into a closed circuit system if any high school had one. The expense of equipping each school with a $300 videotape recorder would be infinitely less than installing a second translator network in the state. There would also be greater flexibility in scheduling. The state's production centers could logically prepare the tapes in cooperation with the State Department of Public Instruction and the State In-School Advisory Committee, and a library of videotape enrichment and course material could be made available to every school in the state. Such a library would immeasurably enhance the use of television as an instructional medium. Therefore, this survey recommends that Phase II of the statewide coverage service consist of installation of the small home videotape recorder as the distribution unit for a second and multiple program service.

The 2500 mc Instructional Fixed Service

While the 2500 mc instructional fixed service is higher in frequency than the present UHF broadcast channels, the service offers great possibilities for "on the air closed circuit" with the advantages of closed circuit privacy and broadcast ubiquitousness. The range is limited from 7 to 15 miles, depending upon power and antenna configuration. At the present time, receivers or converters are required. Thus the 2500 mc system would not be adequate for home viewing. It is a specialized low-cost service designed for direct interschool transmission. In the urban areas particularly the instructional fixed service offers possibilities for future development.

Long-Range Planning

Statewide distribution of educational television in future generations may well have to expand to on the air VHF and UHF channels. While there is not population adequate to support such channels at the present time, we nevertheless must prepare for the future. At the present time the Federal Communications Commission is considering two allocations plans, one proposed by the Commission staff and the other by the National Association of Educational Broadcasters. The following table summarizes the recommendations of the proposed allocation plan and the present allocation plan.

CHANNEL ALLOCATIONS FOR THE STATE OF UTAH

Present VHF Allocations

	Non-Reserved	Reserved for Education (*)
Cedar City	5	
Logan	12	
Ogden		*9
Price	6	
Provo		*11
Richfield	13	
Salt Lake City	2, 4, 5	*7
Vernal	3	

FCC Proposed UHF Reallocation Plan

Brigham City	36	
Cedar City	14	
Logan	30	*46
Ogden	24, 42, 52	*18
Price	17	
Provo	22, 28, 38	
Richfield	16	
St. George	24	*18
Salt Lake City	20, 26	*54
Spanish Fork	56	
Tooele	44	
Vernal	15	

NAEB Proposed UHF Reallocation Plan

Beaver	20, 26	
Brigham City	45, 51	
Cedar City	22	*16
Ephraim-Manti	25	*19
Escalante	24	*14
Logan	29, 57	
Moab	34	*18
Monticello	38	*16
Ogden	27, 39, 61	
Orem	59, 71	
Price	46	*15
Provo	35, 47, 65	*16, *41
Randolph	49	*21
Richfield	13, 17	*23
St. George	28	*18
Salt Lake City	69	*43, *63
Spanish Fork	22	
Tooele		*14
Vernal	28	*17

Originally, we had intended to develop a proposal to cover Utah's needs, but inasmuch as the FCC has under basic consideration drastic changes in its approach to allocations and inasmuch as the NAEB proposed UHF reallocation plan would provide adequate coverage for the state under almost any foreseeable circumstance, the engineering committee feels there is adequate coverage for educational television in the long-range future.

Chapter VI

RECOMMENDATIONS OF THE ETV FINANCE COMMITTEE

A. Statewide Coverage

Phase I of the survey is being completed with installation of a translator system and inauguration of KUSU-TV. Phase II, getting a second signal wherever possible, is complete to 80% of the state's population. The committee recommends that when standards have been set on "home" videotape recorders, the various school districts could purchase such videotape recorders (some are expected to sell for as low as $400 each) to play programs which can be dubbed from existing or new materials and use these at their own convenience for local school viewing. Under these circumstances, the expensive facilities for transmitting additional signals throughout the state are not required at this time. The UJCET should review this problem frequently to determine when additional statewide transmitting facilities should be financed by the state.

Further, the committee recommends that in the immediate future state fund expenditure, priority be given to improvement of programming rather than construction of further transmitting facilities for distribution of programming.

B. General Budget Levels

As the various ETV operations using state support come to be viewed as related parts of a total statewide coverage, appropriation requests for these various operations should be viewed in their totality. The Joint Committee should study these budgets carefully and recommend to the governor and the legislature the extent of financial support required. Eventually, it is hoped that the appropriations per citizen in the state will be sufficiently substantial to utilize more fully the potentialities of ETV.

C. Community Programming

There appears to be overwhelming consensus among the communities that three kinds of programs are needed: programs on the community beamed to all other communities, programs on state problems in general, and programs developed in specific communities beamed to the community or the region. Although the major support will come from the communities as indicated by the survey, state funds are required for staff, personnel, travel and supplies to assist in community programming. It is recommended that the state appropriate $12,000–$15,000 per year for statewide staff to undertake this programming. Staff time for this project could be derived from several appropriate sources such as the University of Utah, Utah State University, Brigham Young University, or other educational institutions. Further, we recommend that these appropriations for community programming receive secondary priority in relation to the more urgent programming needs of the State Department of Public Instruction for in-school programs.

D. UJCET Budget

It is recommended that the Joint Committee receive some state funds to conduct its operations. Further, it is recommended that the committee continue to use a small proportion of a professionally trained coordinator's time to act as a secretariat for committee business. This coordinator should be located either in the State Department of Public Instruction or in the Coordinating Council. The committee recommends that because of the growing in-school programming conducted by the State Department of Public Instruction, the coordinator from that agency be continued in the job and that his budget be expanded by the state to permit him to devote a small amount of his time (less than 25%) to Joint Committee business. Under these arrangements, the following budget is recommended for the UJCET during the next biennium:*

Item	Annual Budget	
Travel	$2,000	
Secretarial assistance	2,000	
Supplies	1,000	
TOTAL	$5,000	(or $10,000 per biennium)

* If more coordinator time is required for the Joint Committee, additional funds must be requested in future bienniums to contract for release of this time from the State Department of Public Instruction.

E. Financing Statewide In-School Programs

There should be a combination of local financing and state financing of ETV programs for the schools. Local financing should be set by the State In-School Television Advisory Committee. Statewide financing should be through the Uniform School Fund administered by the State Department of Public Instruction. The committee feels that because the production and procurement of school television courses by the State Department of Public Instruction is a service extended to all school districts in Utah and because the majority of these districts could not provide such a service for themselves, it is recommended by the State Board of Education with the support of the Utah Joint Committee on Educational Television that school television for statewide use be financed through the Uniform School Fund. This will require a slight modification in the present statute.

ACTIONS RECOMMENDED FOR 1965 LEGISLATURE

1. Appropriate adequate funds to operate KUED and KUSU-TV.
2. Authorization to permit State Department of Public Instruction to finance ETV programs from Uniform School Fund.
3. Appropriate $10,000 for the biennium to the Utah Joint Committee on Educational Television for minimum staff.

It is assumed that community programming funds would be incorporated into station budgets since communities will share financing.

APPENDICES

I. Engineering Report, Boyd Humpherys

II. Educational TV Questionnaire for Community Needs, Edward O. Moe

III. S.B. 218, Original Act Setting Up UJCET

IV. Program, Brighton Conference

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Appendix I

ENGINEERING REPORT

By Boyd Humpherys

MICROWAVE INTERCONNECTION

Microwave interconnection between the major ETV production centers in the state of Utah may be accomplished by two methods: (1) a leased service furnished by the telephone company or (2) installation and operation of a private or state-owned microwave network.

Existing ETV microwave networks in several parts of the country generally have used either, or a combination of the two systems, depending on distance involved, network configuration, cost and funding sources available at the time.

The coming years will undoubtedly see a nationwide ETV network linking every state just as the commercial networks now do. Several eastern states now are linked with such a network for educational program interchange and distribution.

The NAEB is currently studying the feasibility of utilizing the transcontinental commercial network lines during the low-usage nighttime hours for nationwide transmission of ETV programs. This material would be taped at a designated state ETV distribution center or fed into the individual state networks to each respective ETV center and recorded there for later use.

Of prime importance in choosing a particular system for microwave distribution within the state is the compatibility of this system with any foreseeable nationwide ETV network services that may be fed into Utah.

Since the ramifications of each system are many, they will be considered separately, the leased service by common carrier being first.

The Mountain States Telephone Company has presented a comprehensive proposal for transmission services between Utah's ETV centers as they exist at the present time. These are KUSU–Logan, KOET–Ogden, KWCS–Ogden, KUED–Salt Lake City, and KBYU–Provo.

The present rates for this type of service are based on airline mileage separation between points to be served. This rate is approximately $27.50/mile/month for the first channel, $40.00 for two, $52.50 for three, $62.50 for four, and $72.50/mile/month for five channels.

This service would be available in all the major cities along the Wasatch Front and could be developed on a need basis. The system could also be expanded into such other likely areas as Ephraim, Price, Vernal, Cedar City, and St. George with either one- or two-way provisions.

In lieu of out-of-pocket installation charges, a ten-year contract or termination agreement is normally called for due to investment costs. Leased service of this type has many desirable features, some of which are listed below.

- Service would be available on a 24-hour-a-day, 7-day-a-week basis.
- Each channel accommodates video and associated audio material.
- All construction and capital investment costs will be borne by the Telephone Company.
- No replacement or obsolescence problems.
- No system test equipment will be needed by the institutions or state since this would be furnished by the Telephone Company.
- Expansion or changes may be made without capital investment.
- System compatibility would be insured at all stages of development.
- All equipment would be protected by insurance for loss due to damage by wind, rain, snow, etc.
- All maintenance would be provided by the Telephone Company — no extra manpower or service contracts will be required by the institutions or state.
- The institutions or state would be relieved of all FCC requirements (licensing, operators, and maintenance) since this will be a Telephone Company function.
- All engineering services such as site locations, power installation, and access will be handled by the Telephone Company.

— If the nationwide ETV distribution service is furnished by AT & T facilities, interconnection to a state network would not present a problem since terminal facilities would probably be located in the same buildings.

— The program service would be delivered directly to studio locations which would facilitate program switching or recording.

Private Microwave System

The above service can be duplicated by the installation of a privately owned and operated microwave system. Several options or configurations are possible; however, only one configuration is considered here — studio-to-studio service. The reasons for this is direct comparison with Telephone Company service and more flexibility in future expansion, both in state networking and national ETV network possibilities.

At the present, one unattended repeater site will be required to relay signals from KUSU into the Salt Lake and Ogden areas. This probably will involve some site acquisition and development costs.

Some consideration should be given to the relative advantages of a common carrier service for this unattended repeater link since maintenance manpower, access vehicles and other services will be required for this type of operation.

Other proposed sites will be located at transmitters or studios where operating personnel will normally be employed.

It should be emphasized that the operation of a privately owned system will require a permanent system engineer to supervise and maintain the system in accordance with accepted standards.

Some examples of accumulated investment over a ten-year period for various combinations of privately owned microwave service are shown on the following pages.

The basis on which the following cost figures on a privately owned microwave system are derived is a quote from Utah Power and Light Company, Collins Radio Company, Radio Corporation of America, Raytheon, and maintenance experience. Typical costs are as follows:

Terminal

Transmitter/receiver	$6,561
Subcarriers $650 ea.	1,300
Fault Alarm	686
Antenna	406
Tower	1,072
Wave guide	120
Test Equipment	1,197
Installation	2,000

Repeater

Transmitter/receiver	$9,180
Fault Alarm	686
Antenna	812
Tower	1,072
Wave guide	240
Battery charger, etc.	1,730
Building	3,377
Installation	2,955

Additional costs will involve right-of-way or access to remote relay, commercial power extension, and monthly power charges. An adequate vehicle such as a four-wheel drive or snow cat might be required for access. The equivalent of two technicians for system operation and maintenance will be required. Some thought should also be given to insurance protection against rain, snow, fire, theft, etc.

It must be remembered that these figures are approximate in light of the latest quotations from various manufacturers and might possibly vary from those quoted.

The prices quoted are for a duplex (two-way) system employing one watt equipment in the 7 gigacycle frequency range.

Typical advantages and disadvantages of this type of system are as follows:

— Service would be available on a 24-hour-a-day, 7-day-a-week basis.

— Construction would require considerable capital outlay.

— Provision will need to be made for obsolescence and future system up-dating.

— A fairly comprehensive set of test equipment would be required for system maintenance.

— Expansion or changes would require capital outlay.

— Insurance protection would be desirable.

— System maintenance would have to be provided by the state or institutions.

— All system operators and maintenance personnel would require FCC licensing and the system would require FCC licensing by state or institutions.

— Engineering costs for repeater site locations, access, right-of-way, power, and maintenance would be required by institutions or state.

— System reliability would probably be somewhat lower due to remote site.

— Total system cost over a period of years appears to be lower than a common carrier service.

Approximate accumulated investment costs for a private microwave system over a ten-year period are shown on pages 36 and 37.

PHASE II
MULTIPLE ETV SERVICE

As school district curricula expand and enrollments increase over various parts of the state, the need will be felt for additional ETV service in some form or another, whether it be of closed or open circuit type.

As can be seen by the composite coverage of existing ETV stations, the north central portion of the state along the Wasatch Front is covered fairly adequately, at least for the present, with several services.

The remote areas of the state, with the smaller populations, present probably the greatest challenge in providing additional ETV service.

Present plans under Phase I of this survey will supply direct or translator coverage of at least one service to 100 per cent of the schools in the state of Utah. This plan is somewhat unique in that all schools, elementary through high school, will be served even though some of the most desolate and rugged areas in the country will be traversed. This will be accomplished by the use of a translator system which is probably the only one of its kind at the present time.

The translator network will be a combination VHF and UHF system, employing UHF for the main backbone or long-haul distribution.

Duplicating this translator system to provide a second service throughout the state appears to be less favorable than other ideas for several reasons. Due to extensive usage of present VHF channels, additional translators would most certainly have to be delegated to the UHF region. While UHF translation probably offers the best service, cost is roughly three times that of VHF translation and, therefore, a duplicate system would involve from two to three times the original investment. The next limitation is that the originating station would by necessity have to be located in the same general area as Channel 7 since all present translator sites are based on reception from the area of the state — the Oquirrh Range west of Salt Lake City.

Two other possibilities seem to offer the most promising answers to a secondary service at this time, and these are the videotape recorder and activation of on-the-air services in the UHF spectrum or the new 2500 mc so-called "on-the-air closed circuit" system recently approved by the FCC and now in use in New York State.

Videotape Recording

Probably no other development in the television field has caused such a revolution as the videotape recorder. The first videotape recorders weighed 800 to 1000 lbs. and even then were viewed with awe; whereas now portable models are available that are well under 100 lbs. and can be moved with ease by a single person. State of the art advancements promise even further improvements in this product. Transistorization and miniaturization should provide new highs in reliability which will be a tremendous advantage in use of this type of equipment even by non-technical personnel. Reliability even now is much improved over early phases of this type of operation.

While the cheapest videotape recorder suitable for professional performance today is in the neighborhood of $12,000, several home entertainment types of videotape recorders are appearing and are in the developmental stage. They probably will sell for $200 to $600. It is felt that it will be just a matter of time before high quality videotape recordings will be as commonplace and as easy to produce as audio recordings are today.

Distribution of taped instructional programs to recorder-equipped schools from one or several recording and distribution centers appears to be a distinct possibility. Each school thus equipped need only feed the output of the tape recorder, operated by non-technical personnel, into a simple modulator which would convert the taped signals into a standard VHF signal which could then be seen on the television sets which they already have

FIG. 1
Approximate accumulated investment over 10 year period.
Microwave interconnections.
Mountain State: Telephone Co., Leased lines.
Studio to studio terminations.

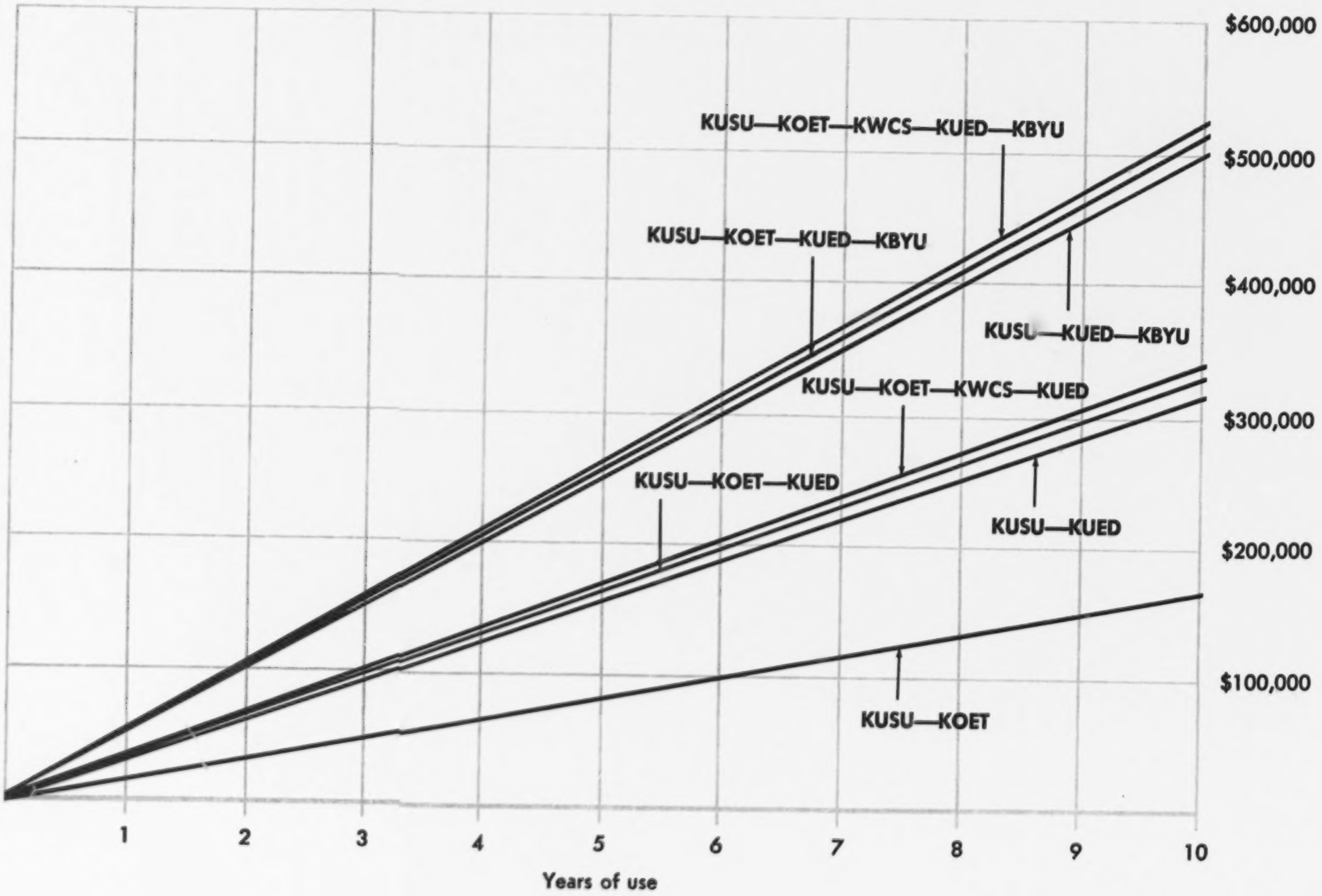
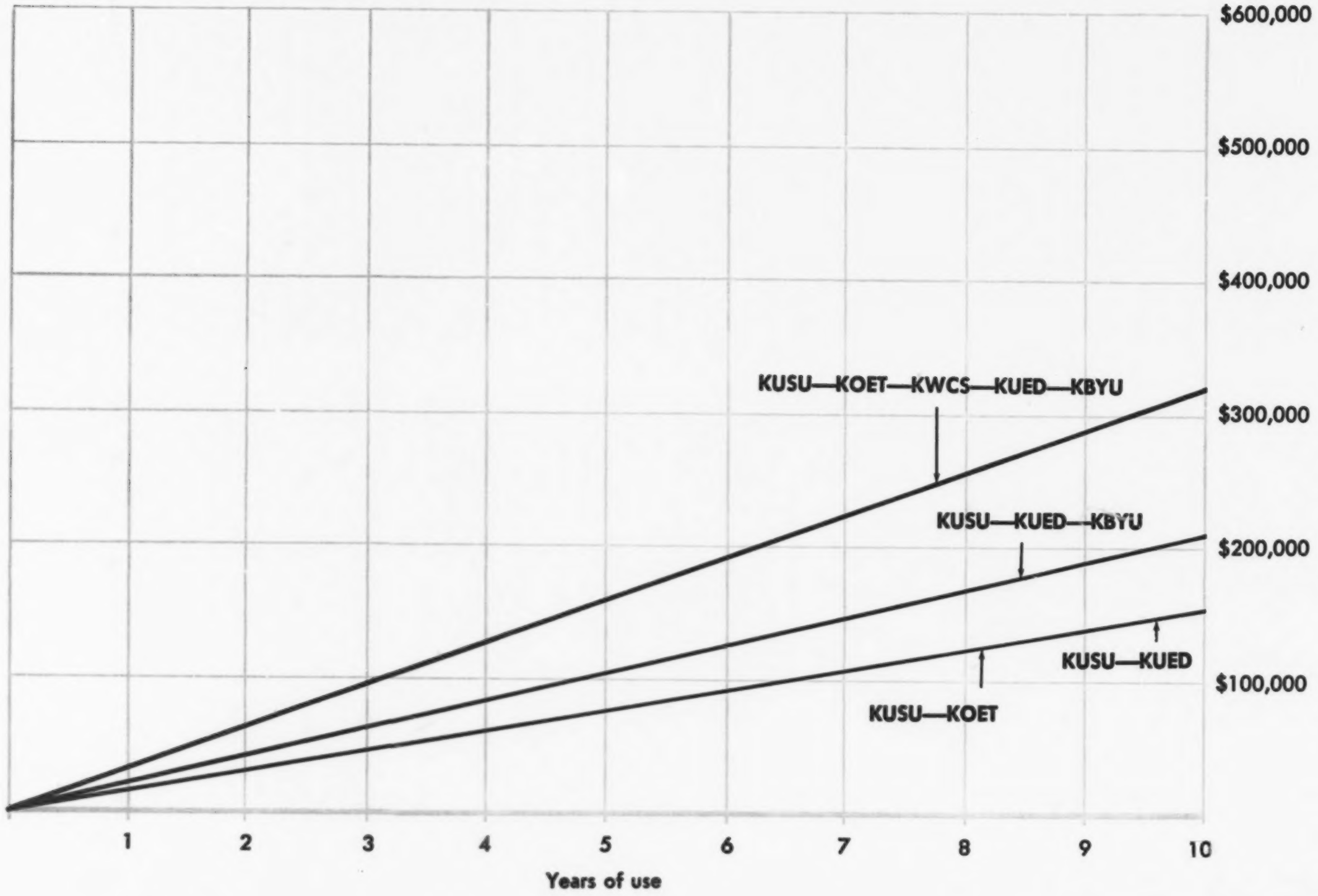


FIG. 2
Approximate accumulated investment over 10 year period.
Microwave interconnections.
Privately or State owned microwave system.
Studio to studio terminations.



installed. The output of the tape recorder could also be fed into a closed circuit video monitor system.

Development in this area offers a distinct possibility for effective ETV distribution in Utah's remote areas.

Activation of Open Circuit Television Channels

With the present VHF allocation system in Utah (see tables on pages 27 and 28), it appears unlikely that more than 1 or 2 additional VHF channels could be activated by either commercial or educational interests.

The UHF spectrum (channels 14–83) offers considerably more possibilities in this area. There seems to be a clear and unmistakable shift to UHF usage as evidenced by many factors. With the passage of the all-channel-set law this year, all sets sold will be capable of receiving all channels 2 through 83, thus removing one of the major stumbling blocks — poor public acceptance because of lack of adequate receivers. Technological advances, such as solid state circuitry and miniaturization, have improved the receiver end of the question so that UHF is no longer the big unknown it once was.

Transmission requirements have also been relaxed somewhat by the FCC and others are likely to follow, enabling truly low-cost transmission of UHF signals, whereas past ventures into this area were quite costly. This means low-cost effective UHF broadcasting will become common.

The operation of the two programmed translators on the University of Utah campus illustrate this point. Undoubtedly a low-cost UHF operation such as this will some day be possible on the UHF channels.

The recent development of the so-called 2500 mc "on-the-air close circuit" service illustrates a logical transition and development in this area. This service is somewhat higher in frequency than the present UHF TV spectrum and exhibits some unique characteristics all its own. It is sometimes called "on-the-air closed circuit" because of its limited range — 7–15 miles depending on power and antenna configuration — and because at present specially designed and somewhat expensive receivers or converters are required to receive it. Not everyone would desire to purchase a special receiver to receive this service although one would not be prohibited from doing so.

It is a specialized low-cost service designed for a specific purpose — direct interschool transmission intended for a specific audience or group. When reception is intended for the general public, the regular UHF channels, 14–83, would be used.

The FCC and NAEB have both initiated studies on reallocation of the UHF spectrum to provide for the many requests for channel space, both by the educator and commercial interests. These two allocation proposals for the state of Utah appear on the following page. As of this date there has been no decision on which proposal will be accepted.

As was the case with commercial utilization of TV channels, ETV is following much the same criteria, i.e., as the community or area developed, a need for one or more television channels developed.

In the areas outside the populous Wasatch Front, several sections have the capability and in the foreseeable future will have the need for on-the-air service, since the definition of Educational Television is not limited to classroom use only. The need here is determined largely by population and educational facilities. Such areas at present appear to be St. George, Cedar City, Richfield, Price, Roosevelt, Vernal, and possibly others.

In the light of technological developments as of this date, it is suggested that further development of ETV service throughout the more sparsely settled areas of Utah not receiving a secondary ETV service be directed along the following lines:

1. The equipping of schools with videotape recorders or playback units when moderate cost equipment is available and performance and compatibility standards have been satisfied.

A study should be made to determine what standards are being established by the industry and educational groups as a whole, to insure compatibility now and in the foreseeable future.

Thought should be given to organization of distribution and recording centers for care of programmed material. A quality product here is of the essence.

Before such a center or centers is organized, it should be determined that the facility will meet the high quality technical standards such as are provided by NET or the commercial services.

2. As the various areas or school districts develop to such a point that a videotape recorder or play-

back unit in every school may not be practical for economic reasons or that closed circuit distribution may be difficult, the operation of an "on-the-air closed circuit" service such as the 2500 mc ETV system should be considered.

3. As community needs indicate the requirement for adult programming, the activation of an assigned UHF channel should be considered.

The following figures are typical of current costs for the small portable videotape recorders now being used in educational work, the new 2500 mc so-called "on-the-air closed circuit" transmission system, and a typical low power UHF transmission system, as of this date.

Videotape Recorders

Five small videotape recorders are being manufactured that appear to have good possibilities in educational use. They are DAGE-NIVICO, SONY, AMPEX, PRECISION, and MACHTRONICS. The price for these recorders is approximately $12,000.

All of these manufacturers have versions that are suitable for standard broadcast quality reproduction. These models sell for approximately $15,000.

Two other so-called home entertainment models have recently been introduced into the low-cost market. One is a FAIRCHILD development and the other one is made by TELCAN, a British firm. These are probably in the late development stage and will undoubtedly undergo many changes. The price range of these models is $300 to $600 and although quality of the reproduction on the models shown thus far is quite inferior to present standards, it is felt that there may be some exciting developments in this area.

2500 mc Service

Several manufacturers are presently offering equipment for this newly FCC-approved type of transmission: ADLER, EMCEE, BLONDER TONGUE and others. The transmission facilities, including transmitter, antenna, tower, test equipment and other associated equipment will cost approximately $17,000 at present. The receiving equipment, converter, antenna, distribution system for a typical small school building will probably cost in the realm of $2,000 to $2,500 at the present.

Low Power UHF Transmission

Many manufacturers offer equipment for low power UHF broadcasting. The prices quoted represent a typical figure and will vary depending on power desired and relative quality. Low power on UHF frequencies may mean 100 watts up to 1000 watts or so. A typical figure for a 1000-watt transmitter, antenna, small tower, and associated test equipment may run from $50,000 to $75,000. A low power unit will undoubtedly be much lower than this. New developments in this field and some relaxation in regulations will be reflected in price reductions.

PRESENT ETV FACILITIES IN THE STATE OF UTAH

The following information is a compilation of existing ETV facilities and their approximate acquisition cost as far as is known at this date.

KOET — Ogden City Schools

Open Circuit Facilities

Videotape recorders	
1 Ampex VR-1100	$ 37,500.00
Studio cameras	
2 Dumont I.O. cameras 2 Dage vidicon cameras	$ 20,000.00
Slide and film proj. equipment	
2 Bell and Howell CBUM proj. 2 Spindler Sauppe proj. 1 G.E. multiplexer 1 Dage 320 BF film vidicon camera	$ 17,500.00
Audio facilities	
1 Gates yard console 1 Gates studio-ette console 2 Gates turntables 2 Ampex 351 audiotape recorders 1 Roberts audiotape recorder	$ 8,635.00
Video switching equipment	
2 Dage switchers	$ 2,760.00
Test equipment	
3 Tektronix scopes 1 Marker sweep generator 1 RCA scope 1 Resistance-capacitance bridge 1 EICO sweep generator 2 Heath tube checkers 1 Transistor checker 1 Picture tube checker 1 Audio oscillator 2 Vacuum tube volt meters 2 Volt-ohm meters	$ 11,294.00

Estimated building cost	$ 68,000.00
Studio facilities — lighting, scenery, etc.	
8 Junior fresnels	
12 Century scoops	
4 8" Fresnels	
1 Leko pattern projector	$ 1,845.00
Arts, graphics, photography, etc.	
1 Photography lab	$ 1,235.00
TOTAL OPEN CKT. STUDIO COSTS	$168,769.00

Closed Circuit Facilities

None

Transmitting and Microwave Equipment

Transmitter	
1 Gates 5 KW transmitter	$ 47,000.00
Antenna and tower	
1 RCA 6-Bay superturnstile	
1 Utility 300′ tower	$ 24,500.00
Microwave equipment	
1 G.E. microwave (2000 mc)	
1 Lambda-pacific microwave (7 kmc)	$ 13,750.00
Test equipment	
1 H.P. frequency-modulation monitor	
1 RCA analyzer	$ 6,535.00
Estimated building cost	$ 15,000.00
TOTAL TRANSMISSION FACILITIES COST	$106,785.00

KUSU — Utah State University, Logan

Open Circuit Facilities

Videotape recorders	
1 RCA TRT 1-A	$ 48,200.00
Studio cameras	
2 RCA TK-15 vidicons	
1 RCA TK-14 I.O.	$ 41,431.77
Slide and film facilities	
1 RCA TK-21C film camera	
2 RCA TP-16 film proj.	
1 RCA TP-11 multiplexer	
1 Spindler Sauppe proj. SL1200	$ 20,200.00
Audio facilities	
1 RCA BC6B console	
2 RCA BQ2B turntables	
1 Ampex 601 audiotape recorder	
8 Assorted microphones	$ 6,110.50
Kinescope recording equipment	
1 Auricon 600	
1 Conrac monitor	$ 5,500.00
Video switching equipment	
1 RCA TS-5A	$ 944.00
Test equipment	
1 Tektronix scope	
1 Hickok tube tester	
1 Resistance-capacitance bridge	
1 Vacuum tube voltmeter	
1 Volt-ohm meter	
1 RF signal generator	$ 2,844.00
Estimated building cost	$ 50,000.00
Studio facilities — lighting, scenery, etc. assorted lights, lighting console, etc.	$ 6,000.00
Arts, graphics, photography, etc.	$ 3,000.00
TOTAL OPEN CKT. STUDIO COSTS	$184,230.27

Closed Circuit Facilities

None

Transmitting and Microwave Equipment

Transmitter	
1 RCA TT5BH 5 KW transmitter	$ 64,600.00
Antenna and tower	
1 RCA TF6AH 6-Bay	
1 Utility 220′ tower	$ 31,483.00
Test equipment	
1 H.P. frequency-modulation monitor	
1 RCA analyzer	
1 Wave form monitor	
1 Picture monitor	
1 Demodulator	
1 Dummy load and watt meter	$ 12,250.00
TOTAL TRANSMISSION FACILITIES COST	$108,333.00

KBYU — Brigham Young University, Provo

Open Circuit Facilities

Videotape recorders	
1 RCA TRT 1A	$ 45,000.00
Studio cameras	
4 G.E. PE20A I.O.	
1 RCA TK 11 I.O.	
2 RCA TK-15 Vidicons	$ 99,000.00
Remote equipment	
1 Control van and tractor	
1 Recording van and tractor	$ 13,000.00
Slide and film proj. equipment	
2 Eastman projectors	
1 TK 21C film chain	
1 Iconoscope film chain	$ 13,700.00
Audio facilities	
1 RCA console	
1 Altec console	
2 RCA turntables	
2 Ampex 600 tape recorders	$ 2,900.00

Video switching equipment	
1 G.E. switcher	
1 Custom-built switcher	$ 13,000.00
Test equipment	$ 14,000.00
Estimated building cost	
Fine Arts Center	$300,000.00
Studio facilities	
lighting, scenery, etc.	$ 10,000.00
Arts, graphics, photography	$ 7,000.00
TOTAL OPEN CKT. STUDIO COSTS	$517,600.00

Closed Circuit Facilities

Slide and film equipment	
2 RCA TK20 film chains	
2 RCA TP-16 film projectors	$ 3,000.00
TOTAL CLOSED CKT. FACILITIES COST	$ 3,000.00

Transmitting and Microwave Equipment

Transmitter	
1 G.E. TT32B 10 KW transmitter	$110,000.00
Antenna and tower	
1 G.E. 4TY 42A antenna	
1 Stainless 84′ tower	$ 32,000.00
Microwave equipment	
1 G.E. TL2A	$ 6,000.00
Test equipment	$ 5,500.00
Estimated building rental (yearly)	$ 25,000.00
Campus cable installation	$ 16,000.00
TOTAL TRANSMISSION FACILITIES COST	$194,500.00

Cedar City High School — Cedar City

Closed Circuit Facilities

Studio cameras	
2 G.E. TE-14 vidicons	$ 3,600.00
2 Pan and tilt heads	$ 1,100.00
1 Zoom lens	$ 1,250.00
1 Tripod and dolly	$ 125.00
1 1″ lens	$ 130.00
Monitors	
2 17″ Conrac monitors	$ 710.00
TOTAL CLOSED CKT. EQUIPMENT COSTS	$ 6,915.00

Granite School District — Salt Lake City

(Utilizing K74AY at University of Utah)

Videotape recorders	
1 Ampex VR 1500	$ 12,000.00
Slide and film proj. equipment	
1 Multiplexer	
1 Slide projector	
1 16 mm projector	$ 1,000.00
Estimated building cost or rental (yearly)	$ 900.00
Arts, graphics, photography, etc. (yearly)	$ 2,000.00
Distribution system in each of 50 schools	$ 10,000.00
TOTAL FACILITIES COST	$ 25,900.00

Bonneville High School — Ogden

Closed Circuit Facilities

Studio cameras	
3	$ 15,000.00
Slide and film proj. equipment	
1 Multiplex unit	$ 2,000.00
Audio facilities	
1 Tape recorder	
4 Preamps	
1 Mixer	$ 1,200.00
Video switching equipment	
1 Control panel	$ 300.00
Test equipment	
1 RCA signal generator	
1 Hickok oscilloscope	
1 Vacuum tube voltmeter	
1 Volt-ohm meter	$ 900.00
Studio facilities	
lighting, scenery, etc.	$ 200.00
Arts, graphics, photography, etc.	$ 25.00
TOTAL CLOSED CKT. FACILITIES COST	$ 19,625.00

KWCS — Weber County Schools

Open Circuit Facilities

Videotape recorders	
1 Ampex VR-1001A	$ 54,000.00
Studio cameras	
2 General Electric I.O.	
2 General Electric vidicons	$ 28,000.00
Slide and film proj. equipment	
1 Bell and Howell 614CBVM	
1 Spindler Sauppe 897	
1 General Electric film chain	$ 5,600.00
Audio facilities	
1 RCA BC-6B console	
2 Roberts 990 tape recorders	
1 Rek-o-kut turntable	$ 1,800.00

Kinescope recording equipment	
1 VUE-Tronics RK-110-B	$ 8,000.00
Video switching equipment	
1 Dynair VS-60	
1 RCA TS-5A	$ 1,300.00
Test equipment	
1 Tektronix scope	
1 Marconi sweep generator	$ 3,000.00
Estimated building cost	$100,000.00
Studio facilities — lighting, scenery, etc.	
12 Scoops	
12 8″ Fresnels	
12 6″ Fresnels	
1 Ariel Davis Dimmer panel	$ 3,200.00
Arts, graphics, photography, etc.	
1 Bolez 16 mm camera	
1 Graphlex camera	$ 1,100.00
TOTAL OPEN CKT. STUDIO COSTS	$206,000.00

Closed Circuit Facilities (Weber High School)

Studio cameras	
1 G.E. 4TE3B1	
1 G.E. 4TE3B1 remote	
1 G.E. 4TET14B1 film chain	$ 8,100.00
Film and projection equipment	
1 Bell and Howell proj.	$ 200.00
Audio facilities	
4 Gates M5382A preamps	$ 400.00
Video switching equipment	
1 Custom audio and video switcher	$ 600.00
Test equipment	
1 Waveform monitor	$ 600.00
Estimated bldg. cost or rental	$ 30,000.00
Studio facilities — lighting, scenery, etc.	
2 Banks of assorted lights	$ 100.00
2 Closed circuit transmitters	$ 1,200.00
TOTAL CLOSED CKT. STUDIO COSTS	$ 41,200.00

Transmitting and Microwave Equipment

Transmitter	
1 RCA 2 KW transmitter (ch-18)	$ 18,000.00
Antenna and tower	
1 antenna	
1 tower	$ 7,000.00
Test equipment	
Assorted test equipment	$ 7,000.00
TOTAL TRANSMITTING EQPT. COSTS	$ 32,000.00

University of Utah

Existing ETV Facilities Survey

Type and No. of videotape recorders	
1 Ampex VR-1000B	$ 55,000.00
COST	$ 55,000.00
Type and No. of studio or remote cameras	
2 RCA TK-31 Imageorthicon Camera Chains	$ 30,194.00
COST	$ 30,194.00
Remote equipment, if any	
G.E. TC-59-A Switcher — Fader	$ 700.00
G.E. BA-26-A Portable Audio Amplifier	845.00
Telechrome Sync Generator	2,000.00
COST	$ 3,545.00
Type and No. of slide and film projection equipment. 16mm proj., slide proj., multiplexers, film camera, etc.	
1 RCA TK-21B Vidicon Film Chain	$ 4,262.00
1 RCA TP-11B Optical Multiplexer	1,395.00
1 RCA TP-7A Dual Drum Slide Projector	2,205.00
2 RCA TP-6CL 16mm Film Projectors	16,493.00
1 RCA Jr 16mm Film Projector	320.00
COST	$ 24,675.00
Type and No. of audio facilities, consoles, turntables, tape recorders, etc.	
1 RCA BC-6A Dual Channel Audio Consolette	$ 1,575.00
2 RCA BQ-2A 3-speed Turntables	935.00
3 Ampex 601 Audio Tape Machines	1,800.00
COST	$ 4,310.00
Kinescope recording equipment	
1 GPL PA-300B Video Recorder 16mm	$ 20,831.0
COST	$ 20.831.00
Video switching equipment	
1 RCA TS-21A Relay Switcher	$ 4,698.00
COST	$ 4,698.00
Associated test equipment	
1 Tektronix 524-D Oscilloscope	$ 1,180.00
1 WV-98A Senior Voltohmist	75.00
1 Video Sweep Generator	1,800.00
COST	$ 3,055.00
Estimated building cost or rental	
Facilities located in already existing buildings on campus.	
COST	$129,000.00

Studio facilities, lighting, scenery, etc.

20 750-watt fresnels	$ 760.00
10 2000-watt fresnels	1,300.00
2 750-watt lekos	100.00
4 18″ scoops	200.00
1 Davis Dimmer	4,000.00
Furniture	750.00
Cost	$ 7,110.00

Arts, graphics, photography, etc.

Dry mount press	$ 140.00
Tel-Animaprint Hot Press	800.00
Paper cutter	70.00
Photo Equipment	500.00
Cost	$ 1,510.00

TOTAL OPEN CIRCUIT STUDIO FACILITIES

Cost $283,928.00

Closed Circuit Facilities

Type and No. of videotape recorders

1 VR1500 Ampex Videotape recorder	$ 12,000.00
Cost	$ 12,000.00

Type and No. of studio cameras

2 RCA TK205 Studio Cameras	$ 10,000.00
2 TK201 Overhead Cameras	3,000.00
1 Philco 349-1013 Overhead Camera	1,100.00
1 G.E. 4TE14 Remote Observation Camera for Teacher Training	1,700.00
Cost	$ 15,800.00

Type and No. of slide and film projection facilities

1 G.E. 4TE14 with EIA Adaptor	$ 2,100.00
2 16mm Bell and Howell Projectors	4,200.00
1 Multiplexer Frame	300.00
1 Leitz 35mm Rear Screen Slide Projector	80.00
Cost	$ 6,680.00

Type and No. of audio facilities

2 RCA BN6B 4 Channel input portable audio consoles adapted to studio use	$ 1,400.00
2 EICO HF 22 Audio Amplifiers	130.00
1 EICO HF-14 Audio Amplifier	45.00
1 Ampex 601 Tape Recorder	600.00
1 RCA Surplus Turntable	110.00
Cost	$ 2,285.00

Video switching equipment

2 Fabricated Relay Switchers	$ 1,800.00
Cost	$ 1,800.00

Associated test equipment

1 Tektronix 525 Wave-form Monitor	$ 1,100.00
1 Tektronix 516 Oscilloscope	900.00
1 Hickok Tube Testor (6000)	240.00
Cost	$ 2,240.00

Studio facilities, lighting, scenery, etc.

1 Drape type Cyclorama	$ 220.00
Assorted Fabricated Flats	200.00
Assorted Surplus Lighting Equipment — some new Ariel Davis Seal Beam Floods and Spots	500.00
Cost	$ 920.00

Arts, graphics, photography, etc.

Cost	$ 300.00

TOTAL CLOSED CIRCUIT STUDIO FACILITIES

Cost $ 42,025.00

Transmitting and Microwave Equipment

Type of transmitter and authorized ERP

KUED — 138KW ERP

RCA TT-5AH Transmitter 5KW	$ 27,850.00
Standard Electronics 25KW amplifier	48,000.00

K71AU — 10.6 watts ERP

Adler UST10BC Translators 10 watts input to ant.	3,296.00

K74AY — 55 watts ERP

Adler UST10BC Translators 10 watts input to ant.	3,296.00
Cost	$ 82,442.00

Type of Antenna and Tower

KUED

1 RCA TF-6AH Antenna	$ 20,906.23
165 ft. IDECO self-supporting tower	24,600.00

K71AU and K74AY

2 Adler antennas	2,684.00
1 30 ft. Rohn Tower mounted on top of building	80.00
Cost	$ 49,270.23

Type and No. of microwave links

2 RCA TVM-1A Microwave Relay Systems	$ 30,382.65
Cost	$ 30,382.65

Associated transmission test equipment

KUED

1 RCA BW-4B RV demodulator	$ 1,890.00
1 General Radio Harmonic measurement equipment	1,800.00
1 H-P Freq. & Modulation monitor	2,050.00
1 Heath Video Alignment generator	78.00
1 H-P Noise and Distortion meter	1,595.00
1 Telechrome transmission test unit	3,800.00

K74AY and K71AU

1 KAY Electronix Mega-Sweep	200.00
1 MC Jones 50-watt, 50-ohm load	90.00
1 BC221AH Surplus freq. meter	10.00
1 General Radio 1213-C frequency calibrator	355.00
Cost	$ 11,868.00

Estimated building cost or rental

One year rental from KCPX
(This includes operation and maintenance)

Cost $ 25,000.00

TOTAL TRANSMISSION FACILITIES

Cost $198,956.88

Note: None of the above includes money being spent under the ETV facilities program by KUED or KOET.

The following table of figures lists the approximate yearly accumulated expenditures for two-way video and audio program services on a comparison basis. This service, both leased line and private system, is a studio-to-studio service.

These figures are illustrated graphically below.

KUSU — Logan
KOET — Ogden

	Leased Lines	Private system
	10-year accumulated cost	
1	$ 17,280	$ 76,052
2	$ 34,560	$ 85,052
3	$ 51,840	$ 94,052
4	$ 69,120	$103,052
5	$ 86,400	$112,052
6	$103,680	$121,052
7	$120,960	$130,052
8	$138,240	$139,052
9	$155,520	$148,052
10	$172,800	$157,052

KUSU — Logan
KUED — Salt Lake City
KBYU — Provo

	Leased Lines	Private system
	10-year accumulated cost	
1	$ 50,880	$ 95,128
2	$101,760	$107,128
3	$152,640	$119,128
4	$203,520	$131,128
5	$254,400	$143,128
6	$305,280	$155,128
7	$356,160	$167,128
8	$407,040	$179,128
9	$457,920	$191,128
10	$508,800	$203,128

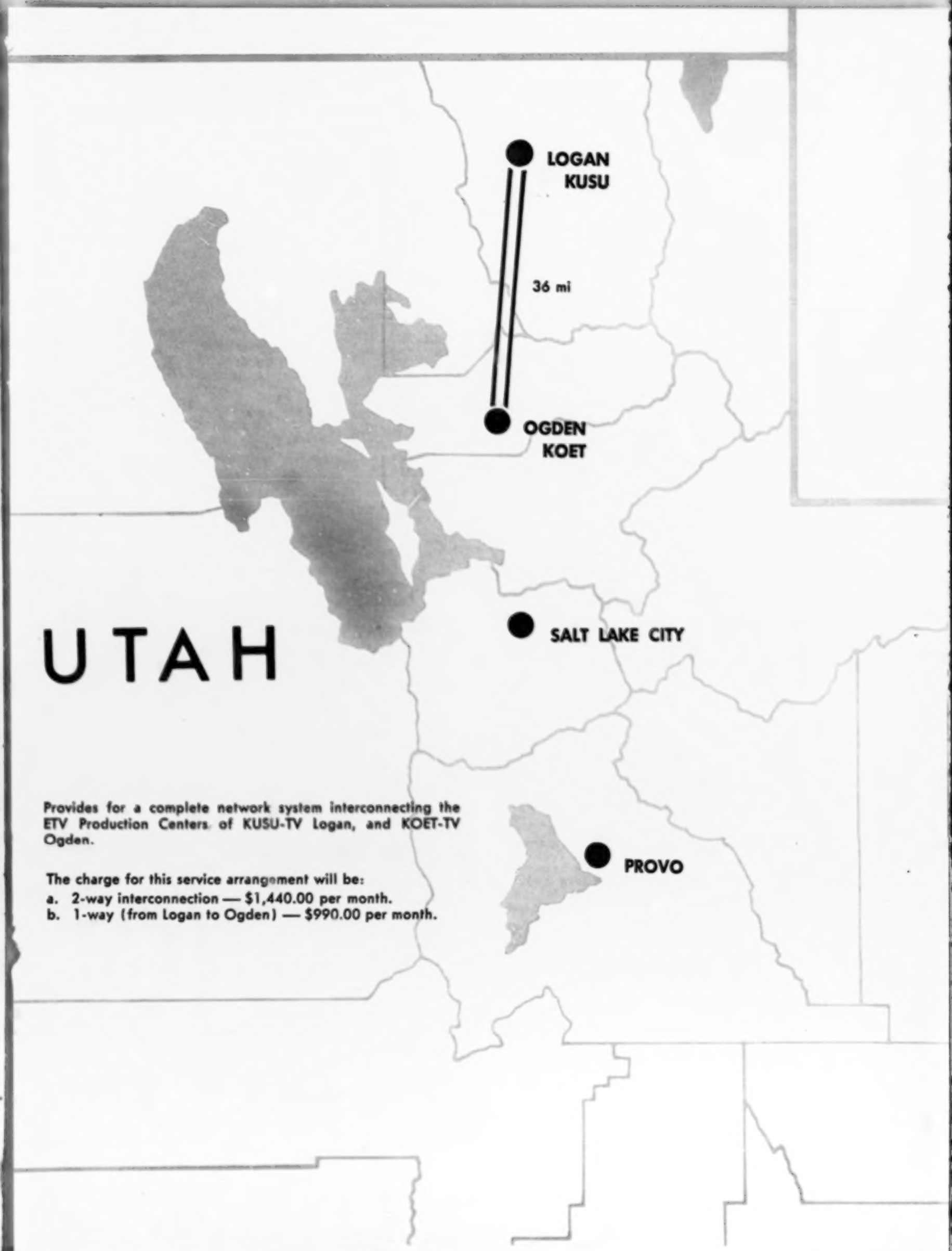
KUSU — Logan
KUED — Salt Lake City

	Leased Lines	Private system
	10-year accumulated cost	
1	$ 32,640	$ 76,052
2	$ 65,280	$ 85,052
3	$ 97,920	$ 94,052
4	$130,560	$103,052
5	$163,200	$112,052
6	$195,840	$121,052
7	$228,480	$130,052
8	$261,120	$139,052
9	$293,760	$148,052
10	$326,400	$157,052

KUSU — Logan
KOET — Ogden
KWCS — Ogden
KUED — Salt Lake City
KBYU — Provo

	Leased Lines	Private system
	10-year accumulated cost	
1	$ 51,840	$130,895
2	$103,680	$152,395
3	$155,520	$173,895
4	$207,360	$195,395
5	$259,200	$216,895
6	$311,040	$238,395
7	$362,880	$259,895
8	$414,720	$281,395
9	$466,560	$302,895
10	$518,400	$324,395

UTAH

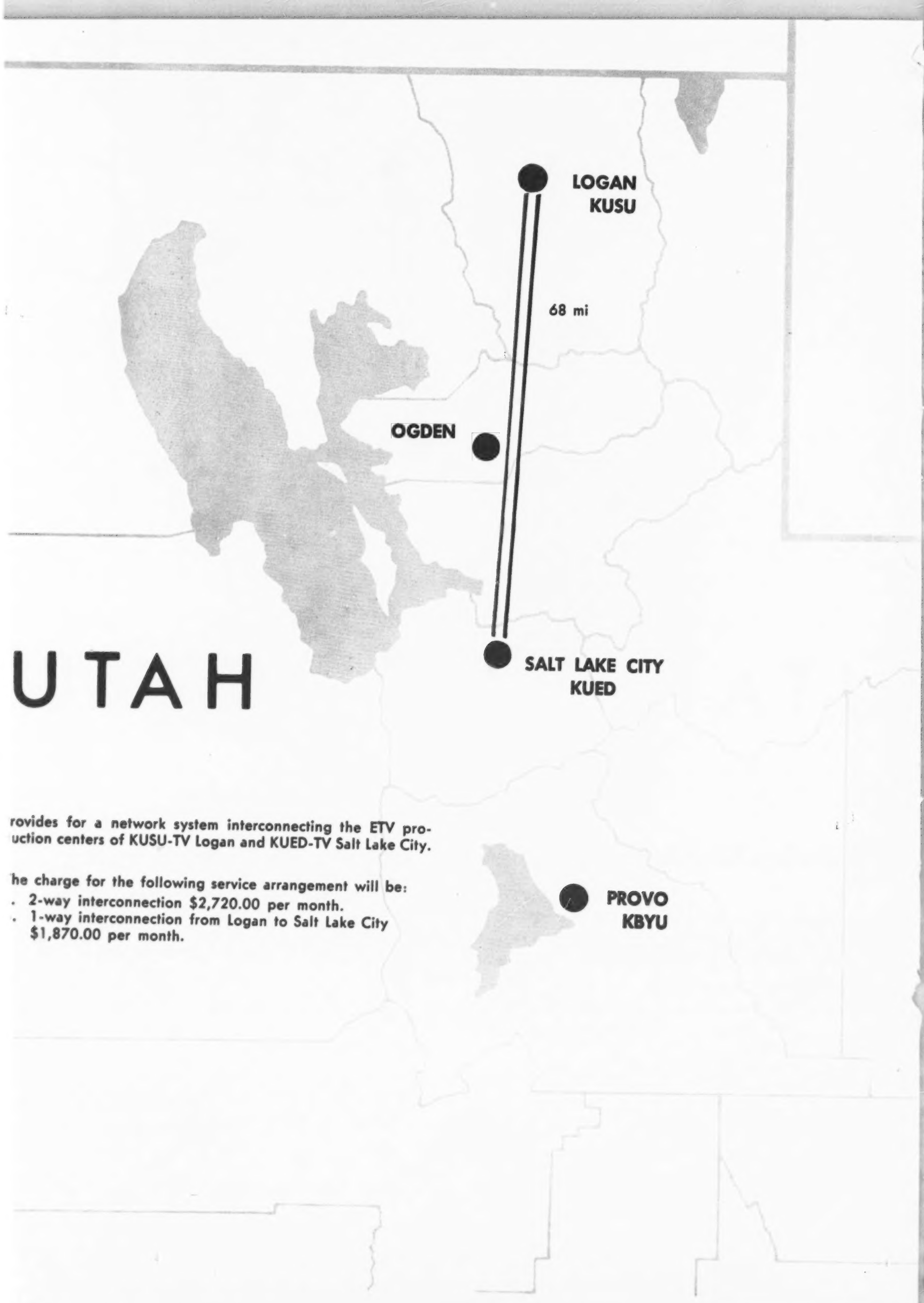


Provides for a complete network system interconnecting the ETV Production Centers of KUSU-TV Logan, and KOET-TV Ogden.

The charge for this service arrangement will be:

a. 2-way interconnection — $1,440.00 per month.
b. 1-way (from Logan to Ogden) — $990.00 per month.

UTAH

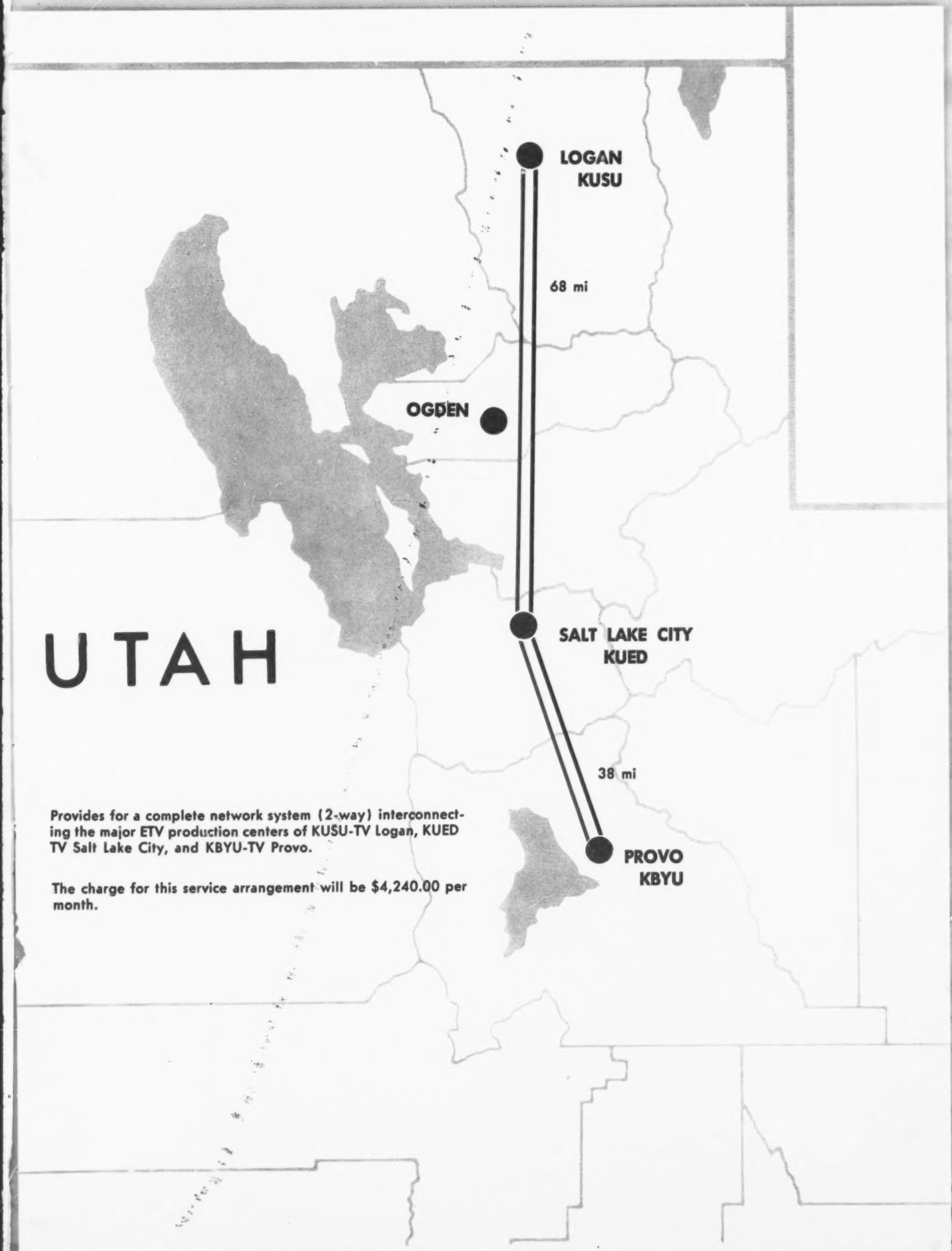


rovides for a network system interconnecting the ETV pro-
uction centers of KUSU-TV Logan and KUED-TV Salt Lake City.

he charge for the following service arrangement will be:

- 2-way interconnection $2,720.00 per month.
- 1-way interconnection from Logan to Salt Lake City $1,870.00 per month.

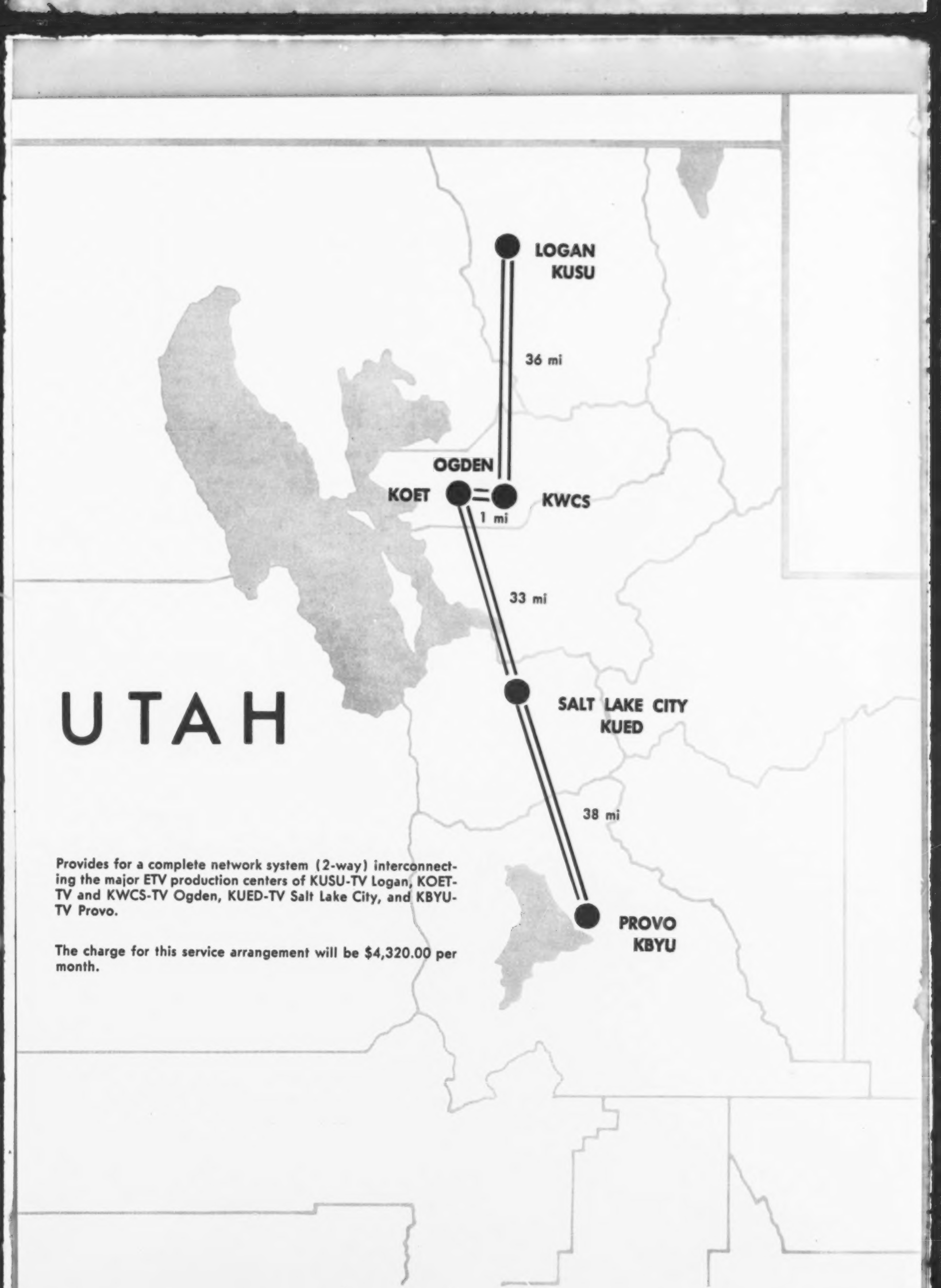
UTAH



Provides for a complete network system (2-way) interconnecting the major ETV production centers of KUSU-TV Logan, KUED TV Salt Lake City, and KBYU-TV Provo.

The charge for this service arrangement will be $4,240.00 per month.

UTAH



Provides for a complete network system (2-way) interconnecting the major ETV production centers of KUSU-TV Logan, KOET-TV and KWCS-TV Ogden, KUED-TV Salt Lake City, and KBYU-TV Provo.

The charge for this service arrangement will be $4,320.00 per month.

Appendix II

EDUCATIONAL TELEVISION QUESTIONNAIRE

Question 1

It has been suggested, as indicated above, that ETV might be used in three different ways. In general how much interest would you think there would be in each of these three different uses?

	Programs on the state level beamed to communities		Programs in specific communities or counties directed to the rest of the state		Programs developed in specific communities beamed to their own residents	
	No.	%	No.	%	No.	%
Very much	93	43.25	45	20.93	82	38.13
Much	78	36.27	63	29.30	52	24.18
Some	35	16.27	84	39.06	41	19.06
Little	2	.93	14	6.51	29	13.48
None	2	.93	1	.46	8	3.72
No response ...	8	3.72	9	4.18	9	4.18
TOTALS		***		***		***

Number of cases 215 total questionnaires

*** Percentages add to more than 100 per cent due to multiple responses.

Question 2

Which of the ways in which educational television could be used do you think might make the most significant contribution to your community?

	Number	Percentage
Programs produced on the local level	12	5.58
Programs on the state level	104	48.37
Programs from communities to state	22	10.23
Programs from community to own residents	39	18.13
Personal improvement	13	6.04
Approve all ideas	18	8.37
No response	12	10.23
Miscellaneous	5	2.32
TOTALS		*** *

* Percentages add to more than 100 per cent in that some people gave more than one response.

Question 3

Why do you feel this way of using educational television would make the most important contribution?

	Number	Percentage
Ability of TV to reach a larger audience	33	15.34
Generates more interest	57	26.51
State better able to produce such programs	27	12.55
Broaden scope of education	38	17.67
Specific benefits to local area	13	6.04
Communities would benefit because of limited finances	12	5.58
Increase of knowledge of problems at the local level	16	7.44
More information about happenings at the state level	15	6.97
Information on a state level applied to the local situation	10	4.65
Miscellaneous	16	7.44
No response	24	11.16
TOTALS		*** *

* Percentages add to more than 100 per cent in that some people gave more than one response.

Question 4

What are some of the kinds of programs you would like to see originate from your community, directed to the rest of the state?

	Number	Percentage
Educational programs	10	4.65
Scientific questions	9	4.18
Programs showing the advantages of living in rural areas	20	9.30
Information on civic and community matters	30	13.95
Information on local beautification efforts	13	6.04
General historic information	11	5.11
Local history	26	12.09
Tourist attractions and scenic points of interest	81	37.67
Cultural	40	18.60
Local celebrations and traditions ...	18	8.37
Local talent	15	6.97

	Number	Percentage
Information about educational facilities within a local area	8	3.72
Programs dealing with community problems	15	6.97
Programs on development within the community	24	11.16
Programs with the focus provided by local source	11	5.11
Programs showing means of increasing industry	13	6.04
More information about entire state .	12	5.58
Miscellaneous	3	1.39
No response	26	12.09
Don't know	1	.46
TOTALS		••• •

* Percentages add to more than 100 per cent in that some people gave more than one response.

Question 5

What particular kinds of programs do you think might be developed in your community directed to its own citizens—the rest of the state might be listening in, but you would be using television for your own purposes?

	Number	Percentage
Selling ideas or attractions to groups	6	2.79
Political programs	13	6.04
Family living seminars	10	4.65
Scenic and tourist attractions	11	5.11
Information on specific local projects	16	7.44
Civic and community development .	44	20.46
Civic problems and issues	38	17.67
Dealing with problems of youth	17	7.90
Items and events of general local interest	39	18.13
Local history	14	6.51
Economic and business growth and development	21	9.76
Public and home beautification through landscaping	19	8.83
Programs directing community cleanup	10	4.65
General education	16	7.44
Special education	6	2.79
Exchange of ideas with other cities ..	6	2.79
Miscellaneous	13	6.04
No response	31	14.41
Don't know	6	2.79
TOTALS		••• •

* Percentages add to more than 100 per cent in that some people gave more than one response.

Question 6

What particular kinds of programs would you like to see developed on the state level and beamed toward your own community or communities in general?

	Number	Percentage
Programs of a historic nature	17	7.90
Programs of a general education nature	59	27.44
Special education (how to do it films, etc.)	26	12.09
Special talent programs	14	6.51
Cultural programs	37	17.20
Political	26	12.09
Legislative activities	30	13.95
Community development	21	9.76
Current problems and issues	34	15.81
Problems and programs within the state	40	18.60
Information on the state's natural resources	17	7.90
Family and human relations	14	6.51
Social conditions	7	3.25
Recreation	7	3.25
Miscellaneous	6	2.79
No response	34	15.81
TOTALS		••• •

* Percentages add to more than 100 per cent in that some people gave more than one response.

Question 7

Some consideration has been given to the kind of an arrangement that should be made to facilitate the development of programs involving communities. Do you think this could best be done by regional program committees built into the framework now established for operating translators, or the school councils, but expanded to include representatives of communities, the county or counties and other groups such as service clubs, women's clubs, church groups, citizens at large, or in some other way? What way?

	Number	Percentage
Combination of county representatives	31	14.41
Regional committee	41	19.06
Organization by area group	34	15.81
Organization with all local civic groups represented	33	15.34
Expand school councils	16	7.44
Accept all suggested ideas	10	4.65
Answer doesn't relate to question	6	2.79
Don't know or no opinion	8	3.72
Miscellaneous	8	3.72
No response	33	15.34
TOTALS		••• •

* Percentages add to more than 100 per cent in that some people gave more than one response.

Question 8

Obviously, the matter of cost is important. Some of the costs that the communities might be expected to pay would be for unusual scenery or props which the stations do not already have, the expenses of local people who would come to Salt Lake or some other point to participate in a program, the costs of photographers coming out to the community, etc.

If such costs were kept to a minimum, as they would be, do you think local communities would help pay such costs?

	Number	Percentage
Yes	122	56.74
Yes, with some limitations	30	13.95
Not sure but feel yes	22	10.23
No response	20	9.30
No	22	10.23
TOTALS		••• •

* Percentages add to more than 100 per cent due to multiple responses.

Question 9

How do you think this might be handled?

	Number	Percentage
The efforts of individual program participants	32	14.88
From existing funds	17	7.90
County responsibility	47	21.86
Fund raising activities within the community	11	5.11
Personal contributions	22	10.23
Taxes	22	10.23
Miscellaneous	9	4.18
State appropriation	11	5.11
Don't know	12	5.58
No response	44	20.46
TOTALS		••• •

* Percentages add to more than 100 per cent due to multiple responses.

Appendix III

SENATE BILL NO. 218

S.B. No. 218 By Messrs. Bullen and Hinton

AN ACT AUTHORIZING THE STATE BOARD OF EDUCATION AND CO-ORDINATING COUNCIL ON HIGHER EDUCATION TO ESTABLISH A JOINT COMMITTEE ON EDUCATIONAL TELEVISION AND AUTHORIZING SUCH COMMITTEE TO ACCEPT AND ADMINISTER FEDERAL GRANTS FOR EDUCATIONAL TELEVISION.

Be it enacted by the Legislature of the State of Utah:

Section 1. Whenever the state board of education and co-ordinating council on higher education consider such action appropriate, and in any event within sixty days after the effective date of any federal legislation which may be enacted making funds available to the state of Utah for the development of educational television, said board and council shall create a joint committee on educational television composed as follows:

(a) Four members shall be selected by the state board of education, three of whom shall be selected from among its membership, and one shall be its executive officer.

(b) Four members shall be selected by the co-ordinating council on higher education, three of whom shall be selected from among the membership and one shall be its executive officer.

(c) The committee may name up to, but not to exceed, nine, non-voting, associate members as it may deem advisable, such members to represent the various television interests in the state of Utah.

The joint committee shall prescribe its own internal organization and may establish appropriate rules and regulations consistent with the provisions of this act.

Section 2. The joint committee on educational television shall serve as a forum for deliberation on educational television problems of mutual concern to the board and council. Said joint committee is hereby empowered and authorized to serve as the official agency representing the state of Utah to receive such federal funds as may be made available to the state for general educational television purposes, and to administer and allocate such funds consistent with the provisions of any law applicable thereto.

Section 3. The joint committee on television, in consultation with the Utah educational television foundation and as a result of appropriate studies, may make such recommendations to the legislature on the purposes and organization of educational television in Utah as are considered desirable.

Appendix IV

BRIGHTON ETV CONFERENCE

Utah Survey of Educational Television

ORGANIZATION AND OBJECTIVES CONFERENCE

Friday and Saturday Morning

November 9–10, 1962

Mt. Majestic Manor Lodge, Brighton

FRIDAY, NOVEMBER 9

Morning Session, 9:00–1:30 p.m.

Chairman — Dr. Keith M. Engar

9:00–9:45 a.m. — Keynote Presentation: "What Educational Television Ought to Be"

James Day, General Manager, KQED, San Francisco

10:15–11:00 a.m. — "Organizational Patterns and Cooperative Programming for Statewide Educational Television"

Dr. Kenneth A. Christiansen, Director of Television, University of Florida — WUFT-TV

11:15–12:00 noon — "ETV in Utah," a slide-sound report

12:15–1:30 p.m. — Lunch

Invocation: Superintendent Sterling Harris

Special Presentation: "Research on Educational Television" — Dr. Jack V. Edling, Director, Teaching Research, Oregon State System of Higher Education.

Afternoon Session, 1:40–5:45 p.m.

Chairman — Dan Keeler

1:40–3:45 p.m. — CONCURRENT SMALL GROUP DISCUSSIONS

Group I — Objectives — Community

Discussion Topic: Based on present and projected needs what ought to be the objectives of ETV in Utah as it serves the process of continuing education and community improvement.

Chairman: Dr. Ellvert H. Himes

Consultant: James Day

Presentations: (3 minutes each)

1. Recap of the services presently being rendered by ETV to the American Community — James Day
2. Summary of what ETV has done in Utah to date in the interest of the program of continuing education and community improvement. — Rex Campbell

Discussion:

Group II — Objectives — Higher Education

Discussion Topic: Based on present and projected needs what ought to be the objectives of higher education in the use of educational television in Utah.

Chairman: Dr. J. Boyer Jarvis

Consultant: Dr. Jack Edling

Presentations: (3 minutes each)

1. Resume of academic uses being made of ETV by universities and colleges — Dr. Jack Edling
2. Description of existing academic uses of ETV by institutions of higher education in Utah — Dr. Burrell Hansen

Discussion:

Group III — Objectives — Elementary and Secondary Schools

Discussion Topic: In consideration of present and future needs what ought to be the objectives for ETV development in the schools of Utah.

Chairman: Afton Forsgren

Consultants: Dr. T. H. Bell, Dr. LaVerd John, Harold Hickman

Presentations: (3 minutes each)

1. Summary of the services of ETV to the public schools of the United States. — John Larsen

2. Basic needs of public school education in Utah to which TV might respond.—Rowan Stutz

Discussion:

Group IV — Organization

Discussion Topic: What kind of ETV organization ought to be set up in Utah keeping in mind the needs of schools, colleges and universities, continuing education and the community.

Chairman: Darld J. Long

Consultant: Dr. Kenneth Christiansen

Presentations: (3 minutes each)

1. Resume of ETV organizational patterns in the United States.—Dr. Kenneth Christiansen
2. Present ETV organization in Utah.—Jack Elton
3. Organizational alternatives.—T. M. Williams

Discussion:

4:00-4:45 p.m. — Break — "Sky ride"

5:00-5:30 p.m. — Small Group Meetings for Summarization

5:45-6:45 p.m. — Dinner
Invocation

Evening Session, 7:00–9:00 p.m.

Chairman — Dr. Burrell Hansen

7:00-8:00 p.m. — Group I Chairman Report and General Discussion

8:00-9:00 p.m. — Group II Chairman Report and General Discussion

9:00- — Exhibits and Selected Presentations

SATURDAY, NOVEMBER 10

8:30-9:15 a.m. — Breakfast

Final Session, 9:30–12:00 noon

Chairman — T. M. Williams

9:30-10:30 a.m. — Group III Chairman Report and General Disscussion

10:30-11:30 a.m. — Group IV Chairman Report and General Discussion

11:30-12:00 noon — Conference Summary
Dr. Keith M. Engar

12:00 — Lunch
Conference Adjournment

PARTICIPANTS OF THE BRIGHTON ETV CONFERENCE

November 9–10, 1962

Wendell B. Anderson, Associate Professor, Political Science, U.S.U.
Sydney W. Angleman, Dean, College of Letters and Science, U of U
T. H. Bell, Associate Professor, Education, U.S.U.
M. Lynn Bennion, Superintendent, Salt Lake City School District
W. Hughes Brockbank, State Representative
J. Richard Brown, Professor of Education, B.Y.U.
Arthur D. Browne, Director, Coordinating Council of Higher Education
Mrs. Edwin Budge, Member, Cache County School Board
Mrs. Ted Burnett, President, League of Women Voters
Rex Campbell, Assistant Director, Radio and Television Services
Lavar Chaffin, Education Editor, Deseret News
Leo Crandall, Member, Nebo School Board
Archie P. Christensen, Chairman, Box Elder County Commissioners
J. Eric Compton, Chairman, Box Elder County Commissioners
Vern Eyre, Chairman, Education Committee, Logan Chamber
School District
Keith M. Engar, Director, Radio and Television Services, U of U
John C. Evans, Executive Secretary, Utah Education Association
Ernest H. Dean, Speaker of the House
* Jack Elton, Director, Audio-Visual Department, Salt Lake City of Commerce
Kenneth Farrer, Assistant Superintendent, Granite School District
Afton Forsgren, Acting Director of Secondary Education, State Department of Public Instruction
Lloyd Gaither, Chairman, Education Committee, Ogden Chamber of Commerce
Robert C. Hansen, President, Cedar City Chamber of Commerce
* Burrell Hansen, Director, Radio and Television, U.S.U.
Sterling R. Harris, Superintendent, Tooele School District
J. C. Haws, Superintendent, Uintah School District
* Harold Hickman, Coordinator, Radio and Television, Ogden School District
Ellvert Himes, Professor in Education, U.S.U.
Vernon L. Holman, Senator of Utah
J. Boyer Jarvis, Assistant to President, U of U
LaVerd John, Director, Pupil Personnel and Guidance Services
Jennie Kearl, Director, Elementary Education
* Daniel A. Keeler, Director of Educational Television, State Department of Public Instruction
* John Larsen, Director, Educational Television, Granite School District
Richard Layton, Member of the Legislative Council
Dixie Leavitt, Chairman, Educational Committee, Cedar City Chamber of Commerce
Arthur H. Lee, Superintendent, Wayne County School District
Darld J. Long, Executive Secretary, Utah School Boards Associations
Della L. Loveridge, Representative of Utah
Sherman B. Lowe, Salt Lake City Business

Merrill R. MacDonald, Chairman, Kane County Commissioners
S. Harold McKee, Chairman, Uintah County Commissioners
Frank Memmott, Senator of Utah
Clarence E. Miller, Chairman, Iron County Commissioners
Leland H. Monson, Chairman, Humanities Division, Weber College
Varian Mortensen, Director, Secondary Education, Murray School District
Owen Rich, Professor, Radio and Speech, B.Y.U.
Avard Rigby, Acting Director of Research, State Department of Public Instruction
Morris Rosenblatt, Member of the Joint Committee on Educational Television
Jack R. Selander, Director, KWCS-TV, Weber School District
Frank G. Shelley, Executive Secretary, Farm Bureau Federation
William Smiley, Education Writer, Salt Lake Tribune
T. O. Smith, Superintendent, Ogden School District
Mrs. Elaine Southwick, Dean of Women, College of Southern Utah
Ray Spendlove, Chairman, Education Committee, Chamber of Commerce (Vernal)
Briant H. Stringham, Member of the Legislative Council
Rowan Stutz, Director, Small School Project, State Department of Public Instruction
John R. Talmage, Assistant to the Governor
H. L. Tolley, Chairman, Beaver County Commissioners
David R. Trevithick, Postmaster, Salt Lake City and Education Chairman of the Salt Lake Chamber of Commerce
Edwin Ure, Second Vice President, Utah School Boards Association
Thorpe Waddingham, Senator of Utah
• T. M. Williams, Director of Radio and Television, B.Y.U.
Sherman Wing, Chairman, Education Committee of Provo Chamber of Commerce, and Assistant Superintendent, Provo School District
Golden P. Wright, Superintendent, Millard School District
Ianthus Wright, Superintendent, Iron School District
Bernell Wrigley, Assistant Superintendent, Davis School District

• Members of the ETV Survey Professional Advisory Committee.